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HERPES ZOSTER AURIS.*

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Herpes Zoster Auris, or Herpes Zoster Auricularis, is, judging from the meagre reports found in literature, one of the rarest of diseases. A careful search through the Index Medicus and other sources at my command, shows scarcely anything presented to the profession in America on this subject since Green's paper, in the Transactions of the American Otological Society in 1874. Prof. Gruber saw only five cases among 20,000 aural cases of all kinds. The text books recognize the disease, but few authors mention any cases of their own. Politzer gives a page on the subject; Barr gives four lines; Buck, twelve lines; Roosa does not mention it; Dench gives two pages excellently describing the disease; Burnett gives three and a half pages and explains the disease fully; The American Text Book of Diseases of the Eye, Ear, Nose and Throat, has three lines on the subject by one writer, four lines by another, and two lines by a third; Posey and Wright on the Ear, Nose and Throat, give seven lines.

By Herpes Zoster Auris we do not refer to the occurrence of a bleb or two, not uncommonly seen accompanying a severe suppurative inflammation of the deeper structures, but to the idiopathic form which starts as herpes and ends as herpes, presenting pain and the characteristic eruption as prominent symptoms and an uncomplicated picture of herpes.

* Thesis. Read before the American Laryngological, Rhinological and Otological Society, Kansas City, June 11, 12 and 13, 1906.

Case Report. J. W., aged 29, toolmaker by trade, a robust well-nourished male, enjoying unusually good health, and presenting no striking evidence of a neuropathic predisposition, with a negative family history as regards nervous disorders, a negative personal history as regards the same, consulted me on February 24, 1902.

Present History. Two days ago, the patient came out of his workshop in an overheated state, and stood 20 minutes in a cold wind waiting for a street car. Next morning he noticed his right ear was stopped up, accompanied by slight twinges of pain in this ear. At 10:30 o'clock the folowing night, he had sudden severe pain in the ear, and at 1:30 A.M., the pain had increased to an unbearable agony. He dressed himself and walked a few squares to my residence, ringing me up. When I saw him he was holding his hand to his ear and rocking back and forth with pain. I naturally inferred that he was suffering from an acute attack of otitis media.

Examination revealed a normal drum membrane, but on the posterior wall of the auditory canal close to the membrana tympani was seen a large bleb slightly dark in color as if it contained serum and a small amount of blood. The probe test showed that the bleb was raised epithelium and contained fluid. Cocaine and adrenalin were used and the blister incised, a painless procedure, evacuating a quantity of blood-stained serum. The pain was not relieved in the least. Further examination revealed an exquisitely sensitive mastoid. Temperature 98°; pulse 72. Thinking that there must be some middle ear involvement, the canal was thoroughly sterilized and the membrana tympani incised at the lower posterior attachment to the annulus, a distance of 8mm. No fluid presented and the canal was carefully plugged, and the patient sent home supplied with four quarter-grain morphine tables with the instruction to take one and repeat in an hour or two if not relieved. The next morning, February 25, the patient's condition was unchanged excepting that he was worn out with pain, which had been unremitting. He had not slept at all; had taken the morphine tablets hourly without relief, the only effect being that they produced drowsiness. Temp. 98°; pulse 72. The patient fainted while attempting to walk across the room. The auditory canal was dry, the M. T. injected along the line of incision but no secretion present. His pain was deep in the ear and over the mastoid. The mastoid region was very tender but not reddened.

Evening of February 25. Pain has lasted all day. Prescribed 15 grains trional to take at 10 P.M., and a saline purge. The auditory canal was plugged with cotton, and the ear and side of the head were confined under a large mass of cotton with a roller bandage.

February 26. Patient slept some after taking the trional; feels weak and complains continually of deep-seated pain in the ear and in the mastoid region. He has an ashen color and an anxious expression. Inspection shows a crop of ten vesicles over the tip of the mastoid and just below on the side of the neck, the lowest

being the largest. The auditory canal is dry and the bleb on the posterior wall is drying up. The incision in the membrana tympani has healed. The posterior wall of the auditory canal is sensitive to touch, as is also the skin over the mastoid. Ordered salol gr. X, phenacetin gr. V, every three hours.

Evening of February 26. Pain less severe. The large blebs over the tip of the mastoid have coalesced and recent smaller ones are seen. Temperature 99°.

February 29. He was permitted to come to town in order to have a photograph taken of the ear. The appearance at that time is shown in the photograph here presented. He feels weak and nervous, and complains of the pain.

March 1. Still has some pain, but is improving. The hearing is improving. The vesicles are smaller and wrinkled; the contents like thickened serum. Air enters the middle ear with a dry sound.

March 8. No sloughing. The eruption has dried up and a new scarf skin has formed under the dried eruption. There is paraesthesia of the parts, but pain is no longer present. Patient feels well and hearing is normal.

Three years later. No return of symptoms.

An excellent description of the disease is to be found in Burnett's Treatise on the Ear. He denominates the affection Idiopathic Herpes Zoster Aricularis, and states that it is a distinct disease of its own class. His description, and, in fact, the description to be found in all sources available to me, mentions the eruption as occurring on the auricle itself, either the front aspect due to involvement of the auriculo-temporal, a branch of the trigeminus, or on the posterior surface of the auricle, due to an involvement of the auricularis magnus, a branch of the third cervical. Gruber has observed herpes of the auditory canal and membrana tympani accompanied by great pain and deafness, and states that he has no doubt that the herpetic eruption occurs in the mucous membrane of the middle ear, basing his supposition on the fact that it has been noticed on other mucous surfaces, notably the soft palate. Hartman also has observed the eruption on the membrana tympani. In Dench's text book on the Ear, we find a good description of the disease. He states that it is extremely rare and is essentially the same as herpes zoster elsewhere. In Politzer's text book there is published a good lithographic drawing of a case in which the anterior surface of the auricle was involved, and a good description of the disease in question. He states "the situation depends on whether the herpes is caused by an affection of the trigeminus (the anterior surface), or the great

auricular (posterior surface) or the ganglion belonging to these nerves." I think he refers to the otic ganglion (or Arnold's ganglion). He mentions pain as the prominent subjective symptom, and the characteristic eruption as the objective one. Most authors mention fever as a symptom, but Politzer states that it is sometimes present. In my case it was absent. Politzer and others have observed facial paralysis on the affected side. This would seem to indicate involvement of the otic ganglion, which I believe has a branch of the facial entering it. The facial palsy was only temporary. There is a type of Herpes Zoster called "Herpes Zoster Gangrenosus Hystericus." Politzer saw such a case. The eruption was located

Herpes Zoster Auris, showing the eruption as it appeared on the fifth day of the disease

on the tragus and antitragus, accompanied by excruciating pain and characterized by necrosis of tissue in the area affected, followed by deep ulcers and healing by cicatrization, resulting in deformity. I wish to call attention to the unusual site of the eruption in my case. Neither the front nor the rear aspect of the auricle was involved, but the eruption occurred on the posterior wall of the auditory canal near the drum membrane and in the region of the mastoid tip. There is no case on record like it that I could find. That it was herpes zoster and nothing else there is not the slightest doubt, for it ran a typical zoster course. Hay[1], Dermatologist of San Francisco,

says, "So typical is the eruption of herpes zoster that among the frequently confusing appearances met with in other diseases of the skin, herpes zoster stands as a definite clinical entity."

Etiology. I could find no authority among the pioneers and teachers in otology who would any more than generalize on the etiology. Dench[2] refers to the neurotic diathesis, dietary indiscretions, faulty assimilation, improper and insufficient food as remote causes, and taking cold and local irritation as exciting ones. Brühl and Politzer[3] mention lymph-glandular enlargements in front of and behind the ear. The observation of the lymph-glandular enlargement preceding the eruption and, therefore, entering in the etiology of zoster in other regions of the body, was first made by Barthelémy[4] in 1891, and has been corroborated by Baudoin[5], Winfield[6], Howard[7], and others. Strümpfell[8] has also verified this observation, and Hay[1] (whose excellent article I freely quote, and whose citations I make free to use), states that "there seems no reasonable doubt that adenopathy precedes the eruption." The work of Grindon[9] is notable, and worthy of mention. He endeavors to separate the secondary zoster from the true idiopathic type, and explains the former as being what he calls "zosteroids." By this he means any herpetic eruption which accompanies and is caused by a local, pathologic state. The following are mentioned: 1. Chronic peripheral irritation. 2. Traumatism. 3. Pressure on nerve trunks (osteophytes, perineural infiltrations, perineuritis, adhesions). 4. Infiltration of a nerve or ganglion from some neoplasm adjacent. 5. Irritating substances, such as lactic or uric acid in the blood. The eruptions due to these and other like influences are, according to Grindon, to be called zosteroids. Eliminating this group and also other known types, such as arsenical neuritis, etc., we still find a large number of cases that cannot be satisfactorily accounted for other than by assuming the presence of some infectious agent. The following arguments in favor of the infectious theory are advanced by Hay. a. The attacks occur more frequently in the spring and autumn months (Weis)[10]. b. It is more common in low altitudes. c. The course is similar to other infectious exanthematous diseases. d. True zoster rarely recurs; this seems to argue a certain immunizing influence. e. The recurrent types are nearly always the so-called zosteroids. f. Family epidemics are reported (Jamieson)[10]. g. Bacteria have been found in a fatal case affecting the face, observed by Graham[11]. h. The constitutional symptoms are out of proportion to the local neuritis

present (Unna)[12]. All these argue a general infection. Neurasthenia has been credited with causing zoster; but in hysteria, mental worry, etc., Cabot[14] states that the blood count is normal, while in zona, leucocytosis is demonstrable. Hay advances this argument to show that hysteria is not the cause. He does this to clear the way for the infectious theory and thinks that the neurotic manifestations are the result, not the cause of zoster. The "hysterical herpes zoster gangrenosus" Van Harlingen[13] states, is not true zoster, but a simple local gangrene. The eruption on one side of the body with the symptoms of general infection, like general lymphadenitis, seems to strengthen the theory of infection as the cause. Those cases of zoster following an injury may be due to the entrance of the specific infection through the infected part, because Rosenback and Kast[15] have shown that wounds kept aseptic are not followed by zoster eruptions. The curious fact that only a single nerve tractus is involved in zoster, seems at first to be incompatible with the infectious theory, but in arsenical and coal gas poisoning, there is but a single tractus involved, and yet there is in each of these a profound systemic poisoning. A careful microscopic examination of a lymph gland extracted from a zoster case under the most rigid aseptic precautions by Hay[1], demonstrated the presence of a large number of micro-organisms, evidently pathologic, but not classified, and many unknown thread-like bodies. The finding argues in favor of the infectious theory. Osler[17] mentions herpes as occurring in trifacial neuralgia, cerebro-spinal meningitis, febricula, malaria, pneumonia, and typhoid fever; but these are not the idiopathic forms of zoster. Writing of true zoster, he states: "The researches of Head and Campbell make it possible that herpes zoster is an acute specific disease of the nervous system, with localization in the ganglion of the posterior roots." I have been impressed in my observation and study of this disease, that the true types of zoster are essentially ganglionic in origin. We note in the herpes zoster ophthalmicus, that the affection is probably ganglionic, and in this, my case of herpes zoster auris, there was probably an inflammation, due perhaps to infection in the ganglions that exist on the sensory root of the third cervical or some ganglion supplying nerves to the region affected. If the otic ganglion had been implicated, we would have had the pinna involved with eruption, associated perhaps with facial paralysis.

Pathology. Bärensprung[16] first demonstrated an inflammation of the ganglion in the sensory root of the spinal nerve in zoster,

and Osler[17] states that there is an acute hemorrhagic inflammation in this ganglion. "There are hemorrhages and inflammatory foci, with destruction of certain of the ganglion cells." On the other hand, Dubler[18] demonstrated a peripheral neuritis with entire absence of central disease, while other observers have found interstitial neuritis and peri-neuritis.

Conclusions. 1. Herpes Zoster Auris is like true zoster elsewhere, a definite disease usually running an acute course.

2. Herpes Zoster Auris is very rare, but has been observed by a number of noted authorities.

3. It may involve the membrana tympani, as well as deeper parts of the auditory canal.

4. Herpes Zoster is most likely an acute infectious disease, causing neuritis, the storm centre being in the ganglion of a sensory nerve.

5. Lymphadenitis is almost invariably present and probably precedes the attack.

6. Treatment is of little avail; the disease usually runs a rapid course and heals spontaneously.

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A NEW OPERATION FOR EXTREME CASES OF SEPTAL DEFLECTION, WITH PRESENTATION OF A SUCCESSFUL RESULT IN AN ADULT CASE.*

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In the wide domain of general operative surgery, the object has always been to remove only organs and tissues that are diseased. When displacement is the principal condition presenting itself the organ being still histologically normal, it has been the rule to make the restoration of that organ to its normal position the chief object of surgical treatment. This truth is so universally recognized among surgeons, that operations upon the various organs and regions of the body are done much in the same way all the world over; the difference in technique being more in relation to the principles of hygiene adopted by the surgeon, than the method in which he does the operation.

This, however, cannot be said with regard to that little plate of bone and cartilage which we term the nasal septum. This troublesome and seemingly insignificant little body has a persistent habit of getting twisted and turned out of its normal position, not by its own will but by the will of the surrounding tissues. It is a victim of circumstances, over which it has no control, and being crowded out of the place that it should occupy, it has been pleading with the rhinologist for generations for the restoration of its vested rights.

The pleading, in a measure, has not been in vain. For more than a score of years, rhinologists have been vying with each other in the advocacy of various operations to give the desired relief. I need not enter into an enumeration of these, for their name is legion. Each has been attended by a certain measure of success. Probably all of them have been followed by good results in minor cases, and some by excellent results in cases that were extreme. Still the outcome has not been what rhinologists have been so earnestly seeking, a reliable means by which extreme deflection could be readily removed and the cartilaginous septum returned to its normal plane. Any definite method by which this could be accomplished in a large percentage of cases would have been accepted, it is safe

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to say, by a majority of surgeons with open arms as the ideal operation; and they would not have turned so enthusiastically toward the removal of the cartilaginous septum as the best method of treatment, particularly when such treatment is a contradiction to the rule already mentioned, namely; to replace and not to excise normal tissue. I refer to the window operation or submucous resection of the cartilaginous septum, which during the last two or three years has been widely accepted as the operation *par excellence* for the removal of extreme septal deflection.

I cannot believe, when nature has placed a large triangular or quadrangular septal cartilage in every person's nose, separating with a firm wall the one nasal cavity from the other that it can be removed in a wholesale manner with impunity, a membranous septum being left in its place. Yet this is the ideal operation of today; so ideal that several operators, with marvelous technique, have each removed from fifty to a hundred septal cartilages already. Being skilled men, the large majority of these operations have been successful; that is, the surgeon dissected back the mucous membrane with more or less of the perichondrium from each side and then removed the cartilage without perforation. Still all the operations of these skilled men have not been without failures. We are told in the American Journal of Surgery for June, 1905, that the originator of the modern method had 12 per cent of permanent perforations; that another operator had 20 per cent; and that yet another, and he one of the most brilliant surgeons of the day, had six perforations out of his first fifteen cases.

In the Laryngoscope for April, this year, the statement is made that the flap operation is often attended by perforation; and that Killian, one of the most skilful and successful of operators has declared that the management of the lowest part of the septum is "most difficult." Also that in the Hajek operation, "the columna is entirely unsupported and may be drawn up into the nose by the contraction of the membranous septum with very noticeable deformity."

Yet the submucous operation has been so widely practised and so much has been written upon it, that every young rhinologist is dreaming of his first ideal operation; and if our established men, surgeons who have been operating for many years, can so frequently, though unintentionally, make successful punches through the septum; what may be expected of the new man, who is simply rubbing his palms together in hope of the opportunity of displaying his brilliancy?

The point might be pressed even further. Is it wise to remove the great mass of the septal cartilage in so many successive cases, even when the operation is brilliantly and beautifully done, resulting in perfect healing of the two folds of mucous membrane, back to back? This operation in its largeness has only been done during the last two or three years. What will be the effect upon these weakened septa in the long years of the future, for many of these patients will live twenty, thirty or forty years yet. We know how weak an organ the septum is, for we frequently find it perforated even without operation; and when perforated it always occasions more or less distress to the patient. How will these membranous septa stand the aridity of the fevers, the typhoids, and the pneumonias of the future? And will there not be a much larger percentage of perforations among the people during future years if every rhinologist considers it his duty to do a submucous resection in every case of severe septal deformity?

It is in the light of these conditions, that I venture to offer still another method of treatment for consideration, one in which the septal cartilage even in extreme cases, instead of being removed, can be relieved of all tension, and replaced with perfect healing in the central plane position. If this claim can be sustained, it should be a better operation for the patient than the removal of the cartilage by submucous resection, no matter how excellently or scientifically this may be accomplished.

My former method, which I practiced for years, was with a thick saw to make two longitudinal cuts from before backwards through the septum. These were made obliquely from the convex side, and were about half an inch apart passing through both mucous membranes, the lower cut being just above the superior maxillary ridge. This diminished the tension of the septum and enabled the operator with finger and spatula to force the central portion as well as the adjacent margins to their normal position. It did not, however, remove the central resiliency of the large curvature from before backwards. Still, my practice was to insert at once a pure rubber splint of sufficient thickness to retain the septum in its new position. The rubber being smooth, aseptic, compressible, and incapable of absorbing germs, was allowed to remain within the nasal cavity undisturbed as long as its presence was needed, cleansing being regularly attended to above and below the splint. In these cases good results were always obtained but they were not perfect and the treatment was too prolonged.

Hence to secure better and quicker results, I have added to the two cuts already mentioned, still another one. That is, to remove the antero-posterior tension, I have made a cross-cut completely through both mucous membranes and cartilage, converting the two straight lines into the figure of H. Hence this method of treatment might be called the H operation.

The points I wish to draw attention to in reference to it are these. First: that as the curvature of the cartilage from above downwards gives it a greater width than it could occupy if it were upright in its normal position, the two longitudinal cuts should be so managed as to remove two long slips of the septal cartilage, and at the same time be made at an oblique angle, so that the cut edges can slide over each other.

Second: that the cross-cut of the H should be very decidedly oblique, extending at right angles beyond both of the parallel incisions, and cutting through both mucous membranes and cartilage so that in replacing the segments, the posterior central segment of the septum will slide forwards over its fellow, and the anterior one backwards.

It matters little how these cuts are made if the principle upon which they are founded is carried out. The long strips of cartilage might be removed either by drill or swivel-saw or knife or ordinary saw of unusual thickness or any improved instrument specially constructed for the purpose. The cross-cut can be made by either chisel or knife.

The immediate result of the combined cuts when made completely through both mucous membranes and cartilage is that all tension is removed, that two rectangular flaps are made by the H incisions, the basic blood supply of each being retained, and that they can with ease be pressed into the normal position, their edges sliding over each other. When I first did the operation, I imagined that I would require to forcibly fracture the larger posterior flap at its base; but this was entirely unnecessary. The pieces will bend easily and sliding over each other are readily adjusted, to be retained in position by the use of the invaluable rubber splint, a single one, on the convex side being the only one needed.

Through the kindness of a gentleman who came with me from Toronto, I can now present to you a case for examination after successful treatment by this method.

His history is briefly as follows: The Rev. T. R., aged 26, was referred to me for treatment on Nov. 8, 1905. He was perfectly

well until ten years ago when he fell off a ladder from the height of 20 feet, striking his chin and injuring himself severely. After his recovery he was troubled with melancholia and lack of power of concentration, both being attributed to the effects of the fall. No one suspected that his nose had been injured. After several years, as

COPIES OF RUBBER PLATES INDICATING EXTREME SEPTAL DEFLECTION.

View from the Side.

1. Post. end.

Anterior end. Dome uncut.

2. Post. end.

Same, after the H cut. Unpressed.

3. Post. end.

Same, the flap pressed into place.

View from above.

4. Post. end.

Anterior end. Dome uncut.

5. Post. end.

Same, after H cuts. Before replacement.

6. Post. end.

Same, after replacement.

partial alienation continued, he went to Texas with the hope that the climate might benefit his health. He remained there for 3 years when his condition became aggravated, and in March, 1905, he found it necessary to return home.

He next went to England and last June was referred to Lambert Lack for advice, who at once said that his nose was at fault and that an operation was urgently required. This however was deferred until he came back to Canada, when he was placed under my care for treatment.

On examination, I found narrow slit-like nostrils with almost complete nasal occlusion on the left side, caused by semi-globular curvature of the cartilaginous septum, which in the central part, was attached to the corresponding inferior turbinate. On the right side, there was a deep, irregular, angular cavity, which was filled by a compensatory hypertrophy of the inferior turbinate, making that side almost as occluded as the other. There was a stale malodor from the secretions, complete anosmia, and some muco-purulent discharge. On using the rhinoscope, the posterior end of the septum was found to occupy a nearly normal position.

The first operation was to reduce the size of the right inferior turbinate. This being done, several days were allowed to elapse, then the septum was operated upon at St. Michael's Hospital under chloroform anaesthesia; solutions of cocaine and adrenalin being also applied to the convex side to shrink the tissues and increase the space required for operation.

As I purposed doing all the cutting from the left or convex side, I first inserted a wide strip of rubber ⅛ inch thick in the right or open cavity as a protective. Then the two longitudinal cuts were made with a thick nasal saw; and the cross-cut to complete the H operation was done by mallet and chisel. All the cuts were beveled and penetrated completely through the septal cartilage and both mucous membranes.

Next, with a blunt dissector the central part of the convex side was separated from the outer wall, and the index finger passed in. The parts were all readily adjusted, the resistance to movement was slight; and once in place, a broad rubber splint ⅜ of an inch thick was inserted to retain the fragments in position until union could take place.

Bleeding was comparatively slight. The temperature rose the following day to 100 degrees, but the next day it fell again and continued normal throughout the treatment, which consisted chiefly in leaving the splint in position and removing the secretions by the use of aseptic absorbent cotton often enough to prevent accumulation.

There were a couple of slight scissor operations, subsequent to the major one and while the splint was still in position. These were to remove redundant tissue below the site of operation. I did not remove the splint until it came loose, which was on the 25th day, when it slipped out easily without traction or bleeding. The passage was wide and almost normal in appearance. No ulceration was present and cartilaginous union had taken place. The sense of smell had already returned.

There was, however, a bony maxillary ridge remaining. But I delayed removing it until January 2nd, six weeks after the operation upon the septum, lest the use of instruments might weaken the rigidity of the latter. From this time forward progress has been uninterrupted. The patient has free and equal respiration through both nostrils. His septal cartilage is firmly fixed near the center, and there is no probability of it ever occasioning future trouble. His physical health is restored. Hebetude has disappeared, the nostrils have become wider and he is able to enjoy life better now than he has done for years.

I do not claim that the operation done in this case was perfect; but I do claim that the philosophy upon which the H operation is based is sound and considering the many years that the patient is likely to live, the treatment adopted was much better for him than any sub-mucous window operation could have been, and I commend the method to you for consideration.

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THE BLOOD-CLOT METHOD OF WOUND REPAIR IN AURAL SURGERY.

BY FRANK B. SPRAGUE, M.D., PROVIDENCE, R. I.

The employment of the organized blood-clot in the healing of the mastoid wound is still an experimental procedure, although in general surgery it is recognized as a rational method of imitating nature and assisting her in wound repair. Since M. Schede's[1] proposition was published in 1886 on the "Healing of Wounds under the Moist Blood-Scab," the organized blood-clot has been utilized to some extent in the surgery of the long bones and in other operations which have necessitated the removal of large amounts of tissue, leaving large spaces to be filled. In an article on "The Treatment of Wounds with Special Reference to the Value of the Blood-Clot in the Management of Dead Spaces," written by Dr. Wm. S. Halsted[2] of Baltimore, in 1891, he reports one hundred and twenty-two operations of various kinds including tubercular joints, malignant growths, gonorrhocal glands and joints and other serious conditions in which the blood-clot method of healing was used and only two cases suppurated. This certainly speaks well for its use in general surgery. My attention was first called to blood-clot healing in 1889 by Dr. A. M. Phelps, of New York City, who had made use of the method in orthopaedic surgery.

The application of the method to the healing of the mastoid wound occurred to me in 1892, early in my studies in otology while then a general practitioner and interested in its use in general surgery. The method of healing mastoid wounds then in use, and in many places used today, was anything but consistent with antiseptic surgery. It was to leave the whole wound open to heal by granulation. It seemed to me an unnecessary procedure to leave a great gaping flesh wound three inches long to heal a bone wound less than half that length; for beside the slow process of healing, taking, as it does, from six to ten weeks, there is an area of two or three square inches of freshly cut surface open to infection and the irritation of dressings, and often these wounds become the site of pyogenic granulation tissue requiring curetting and cauterizing and not infrequently a second operation. It seemed to me that these nasty wounds could be avoided to a large extent by sewing up the line of incision and allowing the resulting mastoid space to fill and heal by blood-

clot. Not being in a position to put these ideas into practice, I suggested them to Dr. C. J. Blake, who after a little hesitation decided to try it and very kindly gave me the pleasure of assisting in the first attempt. This was in the spring of 1892. This case succeeded so well, healing in five days, that he has continued to use it. And the successful manner is which he has developed and described it is well known in otological literature.[3]

The first mastoid operation that I performed, in which I was intending to make use of the blood-clot was in October, 1892; but conditions were such, the man being an alcoholic, and the necrosis very extensive, that I did not feel safe in closing the wound completely, so the lips of the incision were brought together with sutures from above downward to the upper limit of the bone opening, and from below upward to the lower limit leaving about an inch free at the bottom of which a quarter inch rubber drainage tube was placed. The wound united by primary union, except the part left for drainage. The tube was removed on the third day and it was found that the blood had filled the cavity and clotted around the tube. The tube was not replaced and the stitches were removed on the eighth day. On account of imprudence on the part of the patient, the wound became infected and a gravity abscess developed so that a second operation was necessary, but in spite of all the complications the wound was firmly healed in eighteen days.

The second case was treated in a similar way and healed in twelve days. The third case was a girl of twelve years. The necrosis was extensive, but the blood-clot was tried leaving a wick of gauze three-eighths of an inch wide consisting of four or five thicknesses of gauze placed between the lips of the wound at the lower level of the bone opening; and the remainder of the wound closed by interrupted silk sutures. This little wick is ample to drain off the blood serum which becomes pressed out of the clot without disturbing the clot itself, at the same time it leaves a vent which is easily opened in case of infection. The wick was removed on the third day and the wound was healed on the seventh day.

The healing of the first two cases is practically the same as what happens in any abscess cavity; the pus and necrotic tissue evacuated, the drainage material inserted, whether deliberately planned or not, the blood fills in around it and coagulates; and, if it does not become infected, it organizes and helps to fill up the space and form new tisue. A very good explanation of blood-clot organization will be found in an article by Dr. H. O. Reik, of Baltimore, on the "Blood-Clot Dressing Considered Physiologically."[4]

Therefore, in our attempt to improve on the mastoid wound we have two methods of using the blood-clot: First, the closed method using a superficial vent or not according to circumstances, and second, the drain method, where a gauze wick drain a half inch or less in width or a small Halsted protective drain is inserted a half inch or deeper into the cavity. If the first method fails, as it sometimes does, we can easily resort to the second by separating the incision with a probe and inserting a drain wick, and probably succeed; if there is no new infection, with but a few days delay in healing. In the most unfavorable cases, when blood-clot healing is tried, healing is rarely longer than three weeks; so that in our bood-clot failures we have gained three weeks on the best cases, if measured by the duration of the old method, which requires six weeks at least.

In contemplating the use of the blood-clot in the healing of the mastoid wound, we are confronted with one condition which modifies all general surgical principles in their application to the temporal bone both in operation and post-operative treatment. At the bottom of the mastoid wound, we have an anatomical space, the tympanum, which at the time we make our wound is in a state of pyogenic infection pouring out infectious material which endangers our blood-clot, and if confined in the closed cavity of the mastoid, would endanger our patient, although the clot has considerable resisting power. Nevertheless, a suppurating ear is a menace to a perfect result and must have due consideration. Consequently the first point of attack in our mastoid operation is the tympanum to rid it of as much septic material as possible.

TECHNIQUE.

The general principles of the operation proposed by Schede on the long bones were to preserve the periosteum intact as far as we were able to, and through a long, clean, horizontal incision, remove all diseased bone possible, after which the resulting space was allowed to fill with blood, the periosteum reunited and soft parts closed to heal by primary union.

These principles are adhered to in the surgery of the mastoid bone as far as practicable. The technique of the operation itself is a matter of individual choice. Every well established aural surgeon has his own methods, he knows *what* he wants to do, and *how* he can best do it. There are some points, however, which I should like to emphasize as they are especially important where the blood-clot is attempted. It is assumed that the principles of aseptic surgery are observed to the minutest detail, beginning with the preparation

of the patient, in applying the soap or bichloride poultice six hours, or as long before operation as possible, and continuing on, not only through the operation but in the post-operative treatment until healing is complete. Many cases which are successful aseptic operations are spoiled by lack of asepsis at the first or subsequent dressings.

The first step, in the operation, after removing the poultice, is to carefully cleanse the external auditory canal and tympanum. The tympanic membrane should be freely incised from top to bottom, at the same time cutting deep enough to penetrate the engorged oedematus mucous membrane of the cavity. Then this should be thoroughly irrigated and swabbed with sixty per cent. alcohol; after which the canal is plugged loosely with gauze. The post-aural field is then scrubbed with soap and water, ether and finally alcohol and the scalp within the radius of four or five inches is wet with alcohol, after which the sterilized protectives are applied and we proceed to open the mastoid.

In making the incision, in applying the artery clamps, or in using retractors and other instruments all unnecessary bruising of the soft parts should be avoided. The cut in the periosteum should be continuous and clean, it should be elevated without injury, and carefully replaced after the bone is evacuated. After the diseased tissue has been removed and the bone cavity made smooth and clean, a small curette is used to reach into the auditus and deep part of the antrum and remove the pyogenic membrane and any necrotic tissue. The cavity is now thoroughly irrigated with sterile normal salt solution and then mopped dry and allowed to fill with blood. Formerly I have used carbolic and alcohol, bichloride, chloride of zinc solution and other chemicals to sterilize the cavity, but I believe they injure the tissues and do more harm then good. If the soft parts have necrotic areas and pus cavities, they should be removed before the bone is opened. The cavity now filled with blood, the periosteum is replaced and the soft parts brought together and sutured, subcutaneous wire sutures or silk worm gut are preferable, and I do not know that there is very much choice. Interrupted sutures may be used, buried ones are best. Care should be used, however, not to tie them too tightly, for if swelling occurs, parts of the wound may become strangulated, slough and suppurate. After the wound is closed, the plug of gauze is removed from the canal which is again carefully cleaned by wiping and a new wick inserted, the wound is again washed off with saline and dressings applied. The dressings are removed on the third day and the canal wick removed which

will probably be saturated with serum, the canal is wiped dry and a fresh wick loosely inserted. The dressing is then reapplied and left another day or two according to circumstances. When this is removed the canal wick is dry or nearly so at this dressing, if everything is doing well. The wound is examined, and if it looks all right, is not touched. If there should be any local redness and swelling, a vent should be made with a probe at this point; and if secretion is present, it should be wiped out, not irrigated. If it is serum, the vent can be allowed to close again. If it should be pus, a gauze wick would be inserted, and the wound treated as a drained wound. If at the operation we decide that it is not wise to use the closed method, the only difference in technique would be to place the gauze wick or Halsted protective drain in place after the wound has been closed between stitch loops as previously described. If the drain method is employed, a cotton tipped carrier is passed into the opening and the serum soaked out by the cotton. This is repeated till the cotton comes out dry, and the discharge of serum ceases in from seven to ten days, after which the wound is allowed to close. To insure sterile cotton, after being twisted on the wire, it is passed through a flame and then extinguished by snapping, not by blowing of the breath. If pus appears in the wound it is irrigated by normal salt solution. This cleanses the wound as well as any so-called antiseptic solution and does not interfere with healing by producing superficial necrosis of the new forming tissue as bichloride as weak as 1-10,000 has been known to do. The stronger antiseptics do more harm than good, retarding repair rather than helping it.

If drains are used they must be left out at intervals and discarded as soon as possible as in some wounds the discharge is increased by them. If their use is continued too long they interfere with healing.

In all uncomplicated acute mastoids, one of these two methods of healing is always employed. When intracranial complications are present, the incision over the bone opening is left open and the cavity packed to heal by granulation, while the remaining incision unites by primary union.

I have operated in all upon 186 acute cases. In 129 of these I have tried one of the blood-clot methods. The other 57 were healed by granulation as described, most of which were healed in less than four weeks. 60 cases were treated by the drain method, healing in from 12 to 28 days; the majority of them being from 18-21 days. In 69 cases the typical blood-clot method was used and 42 of them healed without interruption in from 7 to 15 days as follows: 1 case healed in 7 days; 3 cases healed in 10 days; 2 cases healed in 11

days; 2 cases healed in 12 days; 4 cases healed in 13 days; 20 cases healed in 14 days; 10 cases healed in 15 days; the remaining 27 for some reason did not heal so quickly although no infection took place; at least there was no pus. These healed, 2 in 16 days; 7 in 17 days; and 18 in 18 days. Of the 69 cases, 11 had pus outside the bone, 10 had perforation of the outer cortex; 7 very extensive necrosis and 4 had defects in the inner cortex.

The duration of the disease from the initial otitis to the operation varied from one week to five months, most of the cases being between three and six weeks. Only 2 of the 69 cases required a second operation; one 14 months, the other 6 months after the first. Both cases were chronic and a radical operation should have been done at first.

In the use of the blood-clot in the radical operation, my experience is limited to 16 cases and only two of these succeeded perfectly and 5 partially; 4 became infected and the clot was entirely lost; 5 appeared to heal all right but broke down in from five to eight weeks after the operation. While 9 of the cases completely failed, they were no worse off than if it had not been tried, and the other 7 surely saved time and pain of dressing. The two successful cases were healed one in five, the other in six weeks. The five partial successes were healed in from 8 to 10 weeks.

The clot has not worked in cases of cholesteatoma or in long continued suppuration with sclerosed bone.

The technique of the blood-clot method in the radical operation is as follows: After complete exenteration of the structure, the canal flap being made according to choice of the surgeon, the opening of the meatus is made large enough to admit of a half inch pure gum drainage tube, which is now inserted to the facial ridge, then a piece of round gauze wick covered with rubber tissue is placed through the drainage tube along the remaining bony canal to the wall of the tympanum, then the whole remaining space is allowed to fill with blood and the mastoid incision closed to unite by primary union. The dressing is applied and left till the third day, when it is examined and if all right, the new dressing is applied. The dressing near the tube will be wet with blood serum, but this is no indication for disturbance; should there be pus, however, it should be changed. On the fifth day, the wick is removed and renewed. The seventh or eighth day the tube is removed and the cavity carefully wiped out and packed closely, but not tightly, with gauze made in small tampons. This packing is repeated every day or two till epidermization is complete. Should the clot break down the cavity is irri-

gated with saline solution and tamponed as usual with small pieces of sterile gauze. If the blood-clot fails, we save a week at least of painful dressing by the use of the rubber tubes and also have a good opening to pack through. This opening contracts after a while and the patient has a symmetrical opening not as conspicuous and unsightly as the usual angular cuts.

POST-OPERATIVE TREATMENT.

The general care of the patient after the operation has an important bearing on the progress of the case; and relapses and failures in healing are often due to ignorance or carelessness in nursing. After the operation the patient should be placed in a room where the temperature can be kept nearly equable night and day for the first week or ten days, and should be protected from drafts of air, either hot or cold. In the winter, great care is needed in ventilating to prevent too sudden or too great change in the temperature. In bathing the patient, care should be used not to chill the body, for there is nothing that will disturb the convalesence of an acute ear and mastoid and increase discharge like sudden disturbances of the body's temperature by exposure.

The dressing is partly removed on the third day, and the canal wick removed, the canal dried with cotton and a new wick inserted. The mastoid wound is not disturbed until the fourth or fifth day. There is usually a little swelling of the tissues about the wound for five or six days. If everything looks all right, the surface is washed off with alcohol at each dressing. The canal is usually dry after the fifth day. On the seventh or eighth day the stitches are removed. I find it better for the wound to keep on the bandage and a light dressing for two weeks at least. If the surface vent is retained, the dressings over the opening will be slightly stained with blood serum for five or six days. I think this is the safer way as the blood serum which is pressed out of the clot and that which nature throws out on the wound surface helps to reduce the virulence of the organisms and also carries them off through the vent opening. In cases of streptococcus infection quantities of cocci are found in this serum discharge but they have evidently lost their virulence as they do not seem to disturb the wound. When the drain method is used, the gauze wick is removed on the fourth or fifth day, discarded, and the blood serum is wiped out with cotton each day as long as it continues to appear which in these cases may be ten days, during which time the wound should be kept as dry as possible, all irrigation being avoided. The wound is usually healed in from twelve to fourteen days.

Should the wound become infected, the drain opening is enlarged to about an inch in length and the cavity irrigated daily with sterile saline solution until the discharge ceases. When pus is discharging from any mastoid wound, the best way to check the process is frequent irrigation; in bad cases two dressings a day for two or three days will clean up the wound and hasten healing wonderfully well.

Before considering some of the important conditions bearing on the success of the healing by blood-clot in the mastoid wound, I wish to mention a case which illustrates its usefulness in aural surgery outside of the bone, namely, a case of fibroma of the lobe, the tumor measuring three fourths of an inch in diameter which occupied nearly the whole lobe so that when it was removed a large hole or really only a rim of lobe was left. After the removal of the tumor, a piece of sterile paper was placed over the front and another over the posterior surface and the space between allowed to fill with blood. In three weeks all dressings were left off, the patient having a perfectly formed and whole lobe. This is the only case I ever had but its successful outcome warrants further trial.

Of the 186 acute cases operated upon only 64% were considered favorable for blood-clot healing. 54% for the typical and 10% for the drain method. Of the 54% considered proper cases for the typical method 68% were successful, being healed in from 7 to 15 days, and the remaining 32% while not perfect successes were healed in 18 days and less. This shows, I think, that blood-clot healing has a place in mastoid surgery in selected cases and even when not wholly successful the time of healing is greatly shortened, the pain of dressing decidedly lessened and the resulting scar not noticeable.

INDICATIONS.

Indications for the use of the blood-clot in the mastoid can perhaps be better considered by excluding what prove to be contra-indications, those conditions under which the method has almost invariably failed. Why certain cases are successful and why others fail, I do not know.

Naturally blood-clot healing is not to be thought of in acute infectious diseases or in tuberculosis, diabetes or chronic constitutional ailments.

The infecting organism plays an important part in the healing process. In primary acute cases, if the staphylococcus is present it has always broken down and suppurated. Some tell us that we do

not get pure staphylococcus in acute cases, but the exception establishes the rule and I have had a few exceptions. In a recent case of sinus thrombosis staphylococcus aureus were found in the ear, mastoid, sinus, several metastatic abscesses, and in a blood culture. The boy is living and well; five months after the operation he has nothing worse than a stiff knee joint having passed through an attack of measles in the meantime. If streptococcus is present in pure culture, and operation is demanded before the opsonic index of the blood is sufficiently high to resist the infection, or nature has not had time to throw up her fortifications around the local process, the blood-clot should not be attempted; as not only the clot becomes infected, but the virulence of the organism is so great that the whole wound suffers more or less. The stitch holes and along the line of incision and every freshly opened area is in 48 hours covered with a fibrinous exudate. If we have no bacteriologic examination to help us out, the duration of the disease from the primary otitis will be a safe guide, and all things considered is probably the most reliable, even when the laboratory aid is available. It seems to require, on the average, about ten days, from the onset of the middle ear trouble for nature to do her work of fortification. In my experience, all of these wounds do better after this period; and really the cases which have gone on three weeks do the best of all.

I certainly believe in early operation and am ready to operate as soon as it seems imperative, but I have seen cases in my own practice and in consultation where systemic infection followed the operation which seemed to me directly traceable to too early operation; before nature had walled off the local process. One patient died of streptococcus infection following an operation which seemed necessary on the fourth day following the initial otitis. Therefore, if it is possible, I wait till the duration of the disease is about ten days.

The virulence of the infection is another important consideration. This is indicated by high fever and the severity of the constitutional disturbance. Cases with extensive necrosis of the bone when the process extends into the zygoma and petrous cells and with extensive necrosis of the soft parts with wide-spread accumulation of pus should be treated by the granulation method.

I should consider all cases of intra-cranial involvement as contra-indication for any blood-clot method. Even in a localized meningitis it is not a safe procedure. If the dura is simply bare after removing necrotic bone, the blood-clot does all right. Some cases of sinus thrombosis after the thrombus has been removed can be treated by the drain method. I have had two cases heal perfectly in 14 days

each and one in 18 days. The surgeon's work is not to kill all the pyogenic invaders and cast them out, for we could not, if we would. We are dealing with a blood infection, the local lesion of which is in the field of aural surgery and we are called upon to remove this local process and so allow nature to send new blood reinforcements, opsonines, if you please to call them, and thereby overcome the pyogenic enemy, cast them out and proceed with the process of repair.

Whatever method of wound repair we may choose to employ, we cannot hurry nature. Some cases which appear to be suitable for quick repair take just as much time to complete as some which seem the most unfavorable. I have come to think that in mastoid cases twelve to fourteen days is nature's best time and I do not believe we can hurry her. What we can do with the blood-clot is to close the wound against subsequent infection and secure the best and quickest results that nature affords in the larger number of cases. If the blood-clot is used indiscriminately, many cases are sure to fail; but if used under favorable conditions, observing the precautions mentioned in operating, in post-operative treatment, and in selection of cases, we have a valuable method of wound repair.

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27 Stewart Street.

INFECTIVE SIGMOID-SINUS THROMBOSIS. RESECTION OF INTERNAL JUGULAR. REPORT OF CASE. RECOVERY.*

BY H. BERT ELLIS, M.D., LOS ANGELES.

The free communication between the pneumatic spaces covering the lateral sinus and the sinus itself, by the mastoid veins, renders an involvement of the lateral sinus very likely whenever a suppurative process exists in the mastoid; but as a matter of fact, another very common source of infection is suppuration of the middle ear, the infection reaching the sigmoid sinus by way of the superior petrosal sinus or small venous tributaries without, necessarily a septic process existing in the mastoid.

In brief, Infective Sigmoid-Sinus Thromboses are ordinarily of otitic origin, and may or may not be secondary to mastoid involvement. However, it is through the mastoid we must attack these conditions, and not infrequently septic foci are found in the mastoid, though apparently not connected as cause and effect, at the same time as the septic thrombosis.

Infective sigmoid thrombosis occurs more commonly in adults, in males, on the right side, and is decidedly more frequent than brain abscess. When an infecting deposit invades the inner lining of a sinus, a fibrous clot forms which may finally occlude the lumen.

Pyogenic bacteria develop in the clot which leads to a general septic infection. The clot may remain localized or extend on down into the internal jugular vein and on to the heart, or pieces of the clot may break off and be carried to other portions of the body and become foci of infection.

The symptoms of this infection are insidious and may not be discovered for some time after the initial involvement.

1. The characteristic symptom which is most likely first to be noted and possibly the only one, is a sudden rise of the temperature, followed by spontaneous and as sudden a drop in the same to the normal or nearly normal condition. Therefore the temperature should be taken frequently in acute suppuration of the middle ear whether or not there be mastoid involvement. If there be a meningitis or brain abscess besides the sinus thrombosis, this symp-

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tom is somewhat disguised as the temperature seldom drops lower than 101° to 100°. An uncomplicated sinus thrombosis temperature wave frequently shows variations of from 6° to 8° and is probably due to the periodic passage into the circulation of broken-down portions of the septic clot within the sinus, causing a general infection. If this condition continues for some time a general sepsis develops, with emaciation and an ashy-hued skin.

2. A severe chill is a frequent symptom but is often entirely absent. Its existence makes your diagnosis the more easy but its absence in no way excludes sinus thrombosis.

3. Profuse sweating nearly always follows the sudden rise of temperature but even this may be absent.

4. Headache, mental dullness, paralysis or convulsions when occurring with the other symptoms of sinus thrombosis lead one to suspect and look for a meningitis or brain abscess.

5. A sinus thrombosis which has existed for some time is likely to extend downwards into the internal jugular vein. When this does occur, there is likely to be some tenderness along the sterno-cleido-mastoid muscle, but personally I have never felt the cord-like ridge which many authors speak of as occurring in this condition.

6. Swelling of the lymphatics behind the ramus of the jaw sometimes takes place in sinus thrombosis but is of but little diagnostic value as it may arise from middle or external ear trouble without any involvement of the sinus.

7. The fundus of the eye should always be examined and if choked disc of opposite eye be found you are likely to find the sinus, the brain or the meninges involved.

8. An unusual and unaccountable depression and weakness is very likely to be found in patients suffering from thrombosis and its presence may be considered contributory evidence.

It is not necessary here to describe the mastoid operation, but having opened up the mastoid antrum and cells and having removed all infective foci in that region, you proceed to expose the sinus. This is sometimes very easy especially when there has been much involvement of the mastoid and the sinus groove has been eroded; at other times the difficulty is great but at all times the greatest care must be exercised in removing the bone, to the end, that the sinus be not accidentally opened before you are ready; or that the contained clot be not broken by manipulation. Probably the most satis-

factory instrument for this part of the operation is the chisel, as with it you are less likely to wound the sinus wall or disturb the clot. The sinus should be exposed as low down as possible towards the bulb and as high up towards the torcular as may be necessary to expose healthy sinus. If after having exposed the sinus and having demonstrated that it contains no thrombus, though the symptoms indicate that it does exist, then it is well to expose the jugular bulb and superior petrosal sinus, for in either of these may lie the trouble.

The appearance, the feel and the pulsation of the sinus have ceased to be large factors in determining the contents of a sinus, because they have so frequently been found to be deceptive. Whenever symptoms of septic sinus thrombosis occur even though the sinus looks and feels all right it is our duty to open it. The sinus should be thoroughly opened and when unhealthy walls are found at both torcular and bulb ends of the opening, pressure plugs may be used and the unhealthy tissue resected, but if thrombosis extends down into the bulb or if the lower portion of the thrombus is undergoing regeneration; then it is decidedly the safer move, for the patient's life, to ligate and resect the internal jugular vein before attempting to remove the thrombus: and when curetting the bulb after a ligation of the jugular it is well to make deep pressure on the opposite internal jugular so as to cut out as far as possible the carrying of small clots or debris into the general circulation by aspiration.

Having curetted the bulb and cleansed the sinus as thoroughly as possible, it is well to carry a piece of gauze into the bulb as far as the postcondylar vein, in order to develop a sudden coagulation and an aseptic thrombus in the bulb, and establish a cross-current between the inferior petrosal sinus and the postcondylar vein.

Rapidity of action and gentleness of manipulation are almost as essential for a successful outcome in these cases, as is the operative interference. The mastoid operation, the sinus operation and the resection of the jugular want to be done, if possible, as one operation, at one sitting, and with the utmost dispatch, as the danger from shock in this trouble is exceeding great and the divided operation is not particularly prone to decrease the mortality rate of this disease.

Report of an operation illustrating this complication.—On May 6th, 1905, I was called by a confrere in a suburb of Los Angeles to examine with him one of his patients, Miss N. N., a physician's daughter, aged 32. From the patient herself, her sister and the doctor I obtained the following history: When two years old she

had an attack of acute otitis media with profuse suppuration on the right side. The discharge continued for some time before ceasing, and this had reoccurred several times during her early life but she had not had an attack or in fact any discharge whatever since coming to California, which had been some five years before. On Saturday, April 29th, on returning from her work she complained of pain in her right ear and a general headache which increased in severity as the days passed along. On Sunday, the ear began discharging but the pain in and about the ear continued and was quite severe. She had had some elevation of temperature but no record had been kept. A nurse was called on May 5th, and her records show that between noon of the 5th and noon of the 6th, when I was called in consultation, the patient's temperature varied from 99.°2 to 105.°2, pulse 93 to 126, respirations 18 to 34. Free perspiration after high temperature, dizziness, vomiting, small amount of discharge from the ear, considerable pain in the mastoid region but only slight tenderness on deep pressure over the antrum, no sagging of postero-superior wall of the canal. The perforation in the drum head was just behind the handle, about the size of a pin head. There was no tenderness along the course of the internal jugular nor was there any lymphatic enlargement. Infective Sigmoid Sinus Thrombosis was diagnosed and operation advised as soon as instruments coud be obtained and house prepared. It was thought the danger was too great to have her brought to Los Angeles to a hospital, a distance of some twelve miles. So we utilized the dining room which the nurse made as aseptic as possible. We operated at 5:30 that afternoon. The mastoid was petrous throughout. The antrum was large and filled with pus and a cholesteatomatous mass. Deep in the substance of the mastoid and extending from the antrum to the sinus groove at the knee was a strip of softer bone, which was probably the line of infection. The sinus was carefully uncovered (the overling groove being softened for about ⅓ inch at the knee along the vertical limb) from above this softened tissue to near the jugular bulb. The sinus wall was dark, lusterless and unhealthy in appearance. Palpation gave no definite knowledge. The hypodermic syringe brought away a few drops of stinking bloody pus. This decided me to ligate the internal jugular vein before disturbing the thrombus. On exposing this vessel I found a firm clot down to entrance of facial vein, and below that point the vein was only partially filled with blood. I ligated the jugular about one inch above the clavical, and the facial just above its juncture with the jugular and resected up to clot, and the lower end of the neck wound was temporarily packed

Returning to the sigmoid sinus, I slit it open the full extent of its uncovering and evacuated a very offensive pussy blood, curetted the sinus as far toward the bulb as possible, and succeeded in getting a fair return flow and introduced gauze to the bulb. The clot in the descending limb of the sinus was then gently removed with the curette and a generous gush of blood washed out all infective material. The hemorrhage was at once checked with gauze plug. As the neck wound had ceased bleeding, and the clot in the jugular vein was firm the wound was closed and the mastoid wound dressed as usual.

During the next twenty-four hours the temperature never went above 99.2°, pulse 97, respiration 24; but about six o'clock P.M. the patient had a slight chill and vomited, temperature going to 102.6°. At ten o'clock she had a chill lasting fifteen minutes, temperature 103°, pulse 131, respiration 31; but, after a free movement of the bowels, the temperature dropped to 99.6° and the patient had a restful sleep. At 6 A. M. on the 8th, the second day after operation, the mastoid wound was dressed because of the more than ordinary oozing. At noon on the 9th, the temperature suddenly went up from normal to 100.6°; and, as the patient was complaining of some discomfort in the neck, a general dressing was done. The upper portion of the neck wound was inflamed so one stitch was taken out and a small amount of pus removed, this probably came from degeneration of the unremoved thrombus. Thereafter the upper portion of the neck incision was treated as an open wound, and the patient went on in an uneventful way to recovery, and at no time did the temperature exceed 100°, the pulse 80 to 90 and respiration 18 to 20.

On the 29th, the patient took a long drive and from that time on went to office for dressing.

After resection of internal jugular for sinus thrombosis, it would seem to me better policy to treat the neck incision as an open wound no matter how clean the parts may be.

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MIXED TUMOR OF THE SOFT PALATE.*

BY T. H. HALSTED, M.D., SYRACUSE, N. Y.

Carcinoma and less often sarcoma are frequently met with in the soft palate and tonsil: small pedunculated papillomatous growths are not at all uncommon on the uvula, soft palate and pillars of the fauces. Adenoma, angioma, dermoid tumors, cysts, polypi, and pretty nearly every kind of new growth has occurred in the fauces; nevertheless any form of benign neoplasm, other than the papilloma, is of such rarity in the soft palate or tonsil, that it would seem to be worthy of note and report.

Bosworth states in the last edition of his book, that there are in literature but seven cases of fibroma in the fauces. Adenoma, or one of its mixed varieties, as adeno-fibroma, adeno-enchondroma or other variety, is apparently more often found in the soft palate than any of the other non-malignant tumors, papilloma alone excepted.

Case. Mr. C. C., aet. 55 years, merchant, was referred to me in July, 1905, by Dr. E. J. Wynkoop. The patient complained of a sore throat and hoarseness, which had existed for a few days. The voice was thick, and somewhat muffled as well as hoarse. Some nasal obstruction of the left side. No earache or deafness. He gave a history of similar attacks at intervals of two to four weeks during the past two years, and at longer intervals for the previous ten or fifteen years. He has repeated attacks of acute bronchitis during the winter months, rarely in the summer. There was more or less constant hawking and clearing of the throat, aggravated during acute exacerbations. Excepting during the acute attacks, the voice was clear.

On examination the left tonsil was reddened, there was decided swelling in the peritonsillar region quite like a quinsy in appearance, the uvula was swollen and slightly oedematous, there was an acute naso-pharyngitis, and laryngo-tracheitis. On palpation the tonsil and peritonsillar mass were very hard. Local applications cleared up the acute inflammation, and in two or three days he was back to what he called his normal condition.

There was now no soreness or pain in the throat, no hoarseness, the voice clear. There was the usual hawking and clearing the

* Read before the 28th Annual Congress of the American Laryngological Association, Niagara Falls, May 31, June 1 and 2, 1906.

throat, with some nasal obstruction on the left side, no pain in or referred to the ear, and no deafness.

The examination revealed the same swelling on the left side of the fauces, the only difference now being in the absence of the superficial redness of the tonsil and uvula. The appearance was that of an enormously hypertrophied tonsil buried between the pillars, and almost entirely covered by them. The swelling was greatest in the soft palate above the arch, and was pushing the posterior pillar backward and largely obstructing the left side of the nasopharynx, extending up to the eustachian orifice. The mass was as hard as a stone and its surface rather nodular.

There was no external evidence in the neck of the growth, either by apparent swelling or on palpation. No glandular enlargement, no history of bleeding. He denied syphilis. He has had for many years a gastric disturbance, and is of a very marked neurotic temperament. Beyond the repeated acute attacks of tonsillitis and laryngitis, he is in very good health.

He has known of the swelling in the throat for at least twenty years, and during this time has been under the observation and the care of many laryngologists both at home and in New York City, and has consulted a number of general surgeons. Eight members of this Association have been consulted by him during the past five years, while several other throat specialists have either treated him or been consulted by him. Various diagnoses have been made, calculus, fibroma, cyst, and other forms of dense benign tumors, while several eminent laryngologists have believed it malignant. The majority advised removal, while two or three were most strenuous in advising against any surgical interference whatever, on the ground apparently that the growth was either malignant and would recur, or if not malignant, the danger of a fatal hemorrhage during the operation was so great that an operation could not be undertaken with safety, and the discomfort was not sufficient to warrant the risk.

With these conflicting opinions he was left much at sea, and did not enthuse when my opinion was given that the growth was not malignant, and removal advised.

During the next four weeks, he came to me for treatment of three acute exacerbations of tonsillitis (left side) and laryngitis. They all subsided in the course of two or three days, only to recur in a week or ten days. He considered operation but postponed it.

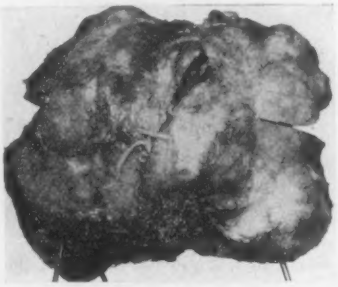
On his return from the White Mountains in the latter part of September, he said that on several occasions of late he had had some hemorrhage from the throat, about a teaspoonful each time. Examination revealed no change, and no apparent increase in size. There was no ulceration. I again urged operation, but before deciding he concluded to consult other specialists and general surgeons, and saw Drs. Myles, Coakley, McKernon, and Samuel Lloyd of New York, and Dr. Jacobson of this City. These gentlemen saw him separately and all concurred in believing the growth to be non-malignant, but were uncertain as to its exact nature, most of them thinking it in all probability a fibroma, and one a calculus. All agreed that the growth should be removed, three through the mouth, and two by external pharyngotomy. Dr. Myles had seen the patient three and one-half years before, and said there was no appreciable increase in size during this period.

On October 3rd, 1905, under cocaine applied externally and by submucous injection, I removed the growth. It was found that the tonsil was simply superimposed upon the tumor which, after removing the former, showed up as a yellowish glistening mass lying external to the tonsil and apparently independent of it. I separated the pillars from the growth with a dull-pointed dissecting tonsil knife, but largely with the finger; and, when the tumor seemed free, I passed a large snare around it supposing the growth was entirely enclosed by it. It cut easily, but the growth had been simply bisected, the remaining half being easily shelled out with the finger. The hemorrhage was comparatively slight but the growth left an enormous cavity, and on the posterior wall of it stood out for about two inches vertically, a vein as large as a goose quill, the wounding of which would have produced a serious hemorrhage. Dr. Wynkoop was present to assist in any such emergency should it occur.

The tumor, somewhat oval in shape, measured 7 cm. in its vertical diameter by 5 cm. by 4 cm. in its other diameters. It was encapsulated, as hard as a bone, and to the finger nail on its cut surface felt like bone or cartilage, and in its center were several small cystic cavities which probably contained fluid, though none was seen as it must have escaped when the growth was cut through with the snare.

The patient made a rapid recovery, the cavity being completely obliterated in two weeks, the soft palate and fauces looking like the other side within a month.

On May 24th, 1906, seven months after operation, he came for examination at my request. There is no evidence of any return of the growth, and one could not tell from appearances on which side of the fauces the tumor had been, excepting that there is a small depression the size of a pea, between the pillars at the arch, where the galvano-cautery had been used ten days after the operation, on what looked like a small piece of the growth left at the time of operation. He went through the winter with but one attack of tracheitis, has had no tonsillitis or sore throat since operation, and has gained twenty pounds in weight. He states that he is in better condition than he remembers ever to have been before.



Mixed Tumor of Soft Palate.

I am indebted to Dr. H. S. Steensland for the following report as to the microscopic findings and for the microphotographs which accompany the report.

"The tumor is a typical example of the mixed tumors of the salivary glands, the so-called cylindromata. The specimen fixed in formalin, consists of the encapsulated tumor. It is irregularly ovoidal in shape, 7 cm. long and hard. It evidently originated in connection with the parotid gland (possibly an aberrant portion) or in connection with mucous glands.

Histological Examination.—The tumor consists of connective tissue in which there are areas filled with epithelial cells. It is surrounded with a definite capsule. The stroma predominates considerably over the parenchyma. The stroma consists of rather a loose connective tissue with a tendency here and there to a cartilagi-

nous or mucoid appearance and contains relatively few connective tissue cells. In some parts there is considerable hyaline degeneration of the connective tissue. A few small areas infiltrated with lymphoid and plasma cells are seen. Where the connective tissue has a cartilaginous or mucoid appearance, it stains faintly blue with hematoxylin indicating the presence of mucin.

The epithelial cells vary in form, but are largely polyhedral and low columnar. The latter cells are largely at the periphery of the alveoli. The nuclei are uniform in size and are round or oval in form. They contain nucleoli. Karyokinetic figures are rare.

Mixed Tumor of Soft Palate.

In many of the aveoli there are spaces. Some are filled with stroma and represent projections of the stroma into the epithelial meshes. These spaces as a rule are rounded in form though sometimes they are irregular. They may be seen to communicate with each other, and with the surrounding stroma.

Other spaces of a different character appear to represent glandular lumina and occur in considerable numbers. They vary in size from the diameter of a red corpuscle to three or four mm. These spaces are lined with low columnar epithelium and contain hyaline material staining with eosin, evidently a secretion.

The blood vessels of the stroma are relatively few in number. No necrosis is evident. The stroma contains groups of fat cells.

The salivary glands, especially the parotid gland, are often the seat of these peculiar tumors. They occur also in the lachrymal glands. This has been pointed out by Verhoeff, and his views in regard to their origin and nature are here followed. (1) "They have been regarded as endotheliomata, but are really of mixed ectodermal and mesenchymal origin. The parenchyma is derived probably from the glandular epithelium and not from endothelium. The cartilage, mucous tissue and bone, that frequently are present, probably represent an atypical development of the mesenchyma."

Wood, in the Annals of Surgery for January and February, 1904, has investigated the mixed tumors of the salivary glands, reporting on the histology of 59 tumors from the salivary glands, lip and pharynx, five only of this number being from the soft palate or pharynx. He states that 95 per cent of the tumors of the salivary glands are of this mixed type. Only 55 per cent were permanently relieved by extirpation, thirty-three cases being cured by operation following recurrence. After incomplete removal he finds that the tumor is apt to take on more rapid growth. These mixed tumors practically never give rise to metastases, either within the regional lymph nodes or elsewhere. They have been described as occurring in the palate, in the antrum of Highmore, and in the nose, and less frequently in other regions, such as in the skin.

Ribbert suggests that in some cases they originate in connection with glands resembling the salivary glands, such as the mucous and sweat glands, and Dr. Steensland suggests the tumor removed from my patient possibly originated from an aberrant portion of the parotid or from a mucous gland.

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REPORT OF A CASE OF POLYPOID LIPOMA OF THE TONGUE.*

BY ADOLPH O. PFINGST, M.D., LOUISVILLE, KY.

This case is presented to the Society on account of the infrequency of benign tumors of the tongue. The patient, a girl of 14½ years, apparently in good health and weighing 107 pounds, had attached to the tongue at a point corresponding to the foramen caecum, a

large pedunclated mass of a peculiar shape which could aptly be compared to a foetal chicken or duck. It had a smooth though a slightly irregular surface, was pink in color and rather firm to the touch. The growth was first noticed by the mother when the patient was about three weeks old, just after the mother was allowed to get up from her lying-in bed, attention being called to it by the croupy condition of the child, the peculiar gurgling respiration and the tendency to choke when placed on her back. At the first examination of the mouth by the mother, nothing could be seen, but on the fol-

* Reported to the Louisville Surgical Society, May, 1906.

lowing day while the child was coughing a large mass was noticed on the dorsum of the tongue and extending anteriorly to the teeth. This tumor has enlarged with the general growth of the child, but relatively has grown but little and at the time of the operation the tip of the tumor could be extended slightly between the lips. The greater part of the day and night the tumor hung back into the oesophagus, but can readily be brought forward on the tongue by tilting the head. During sleep the mouth of the patient was open and she had to lie on her left side to avoid strangling. The patient's voice had been more or less interfered with, the obstruction giving her the peculiar nasal twang characteristic of adenoid growths, or as the mother expressed it "she talks through her nose." Deglutition had also been interfered with, the patieint being unable to swallow dry substance and others only slowly. The tumor had never given the patient pain. There was no glandular enlargement in the neck. Considerable irregularity of the teeth, especially of the upper jaw is noticeable.

On May 9, 1906, the growth was removed by snaring it close to the base with a Peter's snare. Hemorrhage, though profuse for two or three minutes, subsided in ten minutes and the patient made a good recovery. A small elevated nodule now marks the point of former attachment in the median line of the tongue just where the circumvulate papillae form the angle. Just behind the stump a rather large mass of lingual adenoid structure was recognized as soon as the growth was removed.

A noteworthy clinical feature in this case was the marked tendency of the patient to sleep after the operation. For three days she slept all night and the greater part of the day. She could be aroused only by shaking her. In the two weeks following the operation, she has gained eight pounds in weight. Her voice although improved, still has a peculiar nasal character.

The tumor immediately after the operation weighed just one-half ounce. It was 2¼ inches long, 1¼ inches across the broadest part and ½ inch at the apex. Its pedicle measured three-fourths of an inch. After its removal, the mass looked more than ever like a foetal duck without legs. It had a large body, a neck, and at the end of the neck a slight enlargement with a central beak-like prominence. The tumor was placed in 3% formaline.

A section for microscopic examination was taken from the under side of the body near the pedicle. The microscope showed that the tumor was covered externally with numerous layers of epitheljal

cells, the outer layers of the squamous variety and the deeper cells irregular and columnar. The entire surface was studded with small filiform papillae which, however, caused only slight elevation of the epithelial membrane. The subepithelial structure was characterized by an abundance of blood-vessels and a closeness of the fibrous connective tissue. Thin bands of fibrous tissue extended from the submucous layer into the body of the growth. Situated partly in the submucous layer and partly in the adipose tissue, numerous mucous salivary glands were present, the acini in some of them being widely scattered by an interposition of fat cells. The cells in most of the gland ducts were swollen and had undergone mucoid degeneration. Similar changes were observed in some of the large blood-vessels, the endothelial cells having undergone hyaline degeneration. The mass of the growth was made up of true adipose tissue with rather large cells irregularly arranged and was characterized by an abundance of thin-walled blood-vessels.

Although there could be little doubt as to the nature of this growth, specimens were submitted to Dr. Jno. E. Hays and Dr. Jno. B. Richardson who verified the diagnosis of lipoma.

Tumors of the tongue are very uncommon, this being especially true of the benign varieties. Of the benign growths of the tongue, papillomata have been met with most frequently, but the tongue has also been the seat of adenomata, lipomata, chondromata, osteomata and of cysts.

Lipomata have been seen less frequently than any of the other growths of the tongue. This is evidenced by the fact that Rosenberg[1] in 1892, in an extensive article on tumors of the tongue, merely mentions the existence of lipoma without citing a single case. A year previously, Rydygier[2] gathered all of the cases of lipoma of the tongue previously published and found fourteen cases. Independently of him, Christian Koehler[3] gathered the same number of cases in the same year. Most of the cases on record were very small growths without pedicles. The largest on record at that time was reported by Barling[4] who had observed a case with four distinct enlargements at the edge of the tongue in a man of 75 years, the largest of which was about five inches long and the smallest the size of a small nut. They were not pedunculated and had been growing for twenty years. The diagnosis of lipoma was made from macroscopic appearance, microscopic examination having been made impossible by the refusal of the patient to submit to operation. Kirchoff[5] reported a lipoma of the tongue which he compared in

size to a small hen's egg. It occurred in a man of 62 years and had been growing for four years or longer. Microscopic examination was also not made in this case, the nature of the tissue being assumed from its external appearance, its consistence and its point of attachment. It was attached to the right side of the tongue and from the description evidently had no pedicle.

Since these cases were gathered, Chevasse[6], in 1896, reported in a man of 86, multiple lipoma of the tongue, the largest of which was compared to a tangerine orange. As operation was refused, the positive diagnosis of lipoma was also not made in this case. H. Foster[7] added a case to the literature in 1898. His growth was observed on the tongue of a man of 62 years old, and had existed for five years. Although nothing was said by Foster of the size or nature of the tumor, judging by the illustration accompanying his publication, it was about one-half inch in diameter and was attached by a pedicle near the root of the tongue.

Butlin[8] in his monograph on "Diseases of the Tongue" divided lipomata into the following clinical forms: (a) single and superficial, tending to become pedunculated; (b) single and deep-seated or beneath the tongue: (c) multiple; and (d) diffuse. Of these forms, the single deep-seated variety has been most frequently met with. It is this variety which was formerly spoken of as double-tongue. They are often situated on the under side of the tongue and are said to resemble a ranula in appearance and to the touch. The adipose tissue may invade the muscular layers of the tongue. This variety is best removed by incising the mucous membrane and peeling out the growth. Next in frequency has been the single polypoid variety. They occur usually on the dorsum or at the borders of the tongue and may be uniform or lobed. They are best removed with a cold snare or electro-cautery. The multiple variety of the lipoma is usually of the deep-seated kind, and has been observed mostly in old men. Some growths of considerable size are on record. According to Butlin, all varieties of fatty growths of the tongue occur chiefly in late adult life, one case having been observed as late as the 86th year. They are all very slow in their development so that fifteen to twenty years may elapse before they attain the size of a pigeon egg.

My case was of the single pedunculated variety and was considerably larger than any single tumor of the kind on record. In addition to its size, the other features of interest in the case were its peculiar shape, the age at which it was first seen (three weeks),

the apparent slowness of its development (14 years) and the absence of marked clinical symptoms. It is also interesting to note that a girl of considerable intelligence with an intelligent mother of good habits and living in the city would allow a growth of this size to remain for almost fifteen years without seeking medical advice.

654 4th St.

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Herpes of the Larynx and Pharynx. EMILE GLAS. *Berl. klin. Wchnschr.*, February 12, 190?.

The author has had occasion to observe a small epidemic of herpes. The differential diagnosis from pemphigus is most important. In the latter the vesicles are of different sizes, many of them being quite large. The ulcers are deeper and when the vesicles burst the loose epidermis is visible for some time afterwards. There is also a tendency to bleeding from the mucous membrane around the base of the ulcer. Acute laryngitis is generally absent in pemphigus.

YANKAUER.

FAUCIAL PILLAR RETRACTORS.

BY A. R. SOLENBERGER, M.D., COLORADO SPRINGS, COLO.

Perhaps no part in the practice of Laryngology has contributed more to its progress than the comparatively recent critical study of the morbid anatomy of the faucial tonsils.

It is not many years since tonsils which were supposed, in any degree, to be diseased were considered either only hypertrophied or atrophied. In the former case, they were guillotined and in the latter treated, if at all, topically.

The new terms, "buried," "submerged," "degenerate," reflect more than the naked-eye pathology of the so-called atrophied tonsil. If rightly interpreted they really mean that often in the tonsil, entirely out of sight, we find morbid conditions of much wider significance than in the "hypertrophied" tonsils.

We know now that in the atrophied and buried tonsil, with its blind, dark, moist and warm pockets, we have an ideal nidus for the propagation and spread of disease-producing germs. I need, however, not here enter into a detailed study of this kind of diseased tonsil. The readers of this Journal well know how large and vicious is the pathologic circle which this diseased tonsil describes, if not always a generating causal force, then always a very pernicious segment. I believe, however, that the general practitioner is far from appreciating the full significance of the "diseased" tonsil as a causal force in the production of respiratory and gastric diseases.*

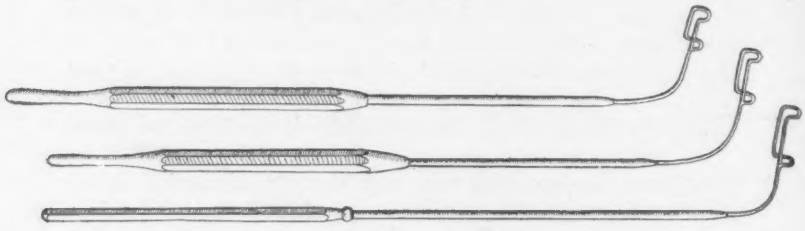
It is with the desire to aid the practitioner in the diagnosis, and the specialist in the radical treatment of the diseased buried tonsil, that I have tried to devise a satisfactory pillar retractor. I presume that all laryngologists now make critical examinations of tonsils where signs of disease in any degree exist, and that they, like myself, have used hooks, forceps, etc., and must have found all such very inadequate to expose the entire inter-pillar space. Besides their inadequacy, the extemporized instruments, if they did not wound the pillars, caused excessive irritation and retching.

Some years ago I devised a double probe-pointed hook, which was a great improvement over the single hooks, but did not bring to view all the parts and still caused much gagging. I then conceived the idea of a double separator-retractor with thin fenestrated wire

* A Clinical Study of the Diseased Tonsil in the Causation of Respiratory and Gastric Diseases. *New York Med. Journ.*, August, 1906.

blades fitting the pillars on the principle of Gleason's Speculum, with scissor-handle but reverse scissor-action of the blades. With this the pillars could be separated to any degree and the entire inter-pillar space exposed, but one could see that the posterior pillar yielded but slightly. It was evident that only the anterior pillar needed retraction. This double action, too, caused as much discomfort as the former instruments. I then perfected one blade of the forceps, which I herewith show. In most cases it causes no more gagging than is desirable. The pillar seems to rest comfortably in the wire fenestra or trough, and, selecting the proper size, the entire inter-pillar space can be brought into sight for thorough inspection and examination with probe.

However, as is well known, in many cases where the openings, even to large, foul cryptal pockets are but pin hole in size, it is very desirable for thorough exploration to have the fauces in a state of comparative rest. In such cases, and also in cases with very sensitive fauces, local anaesthesia is necessary.

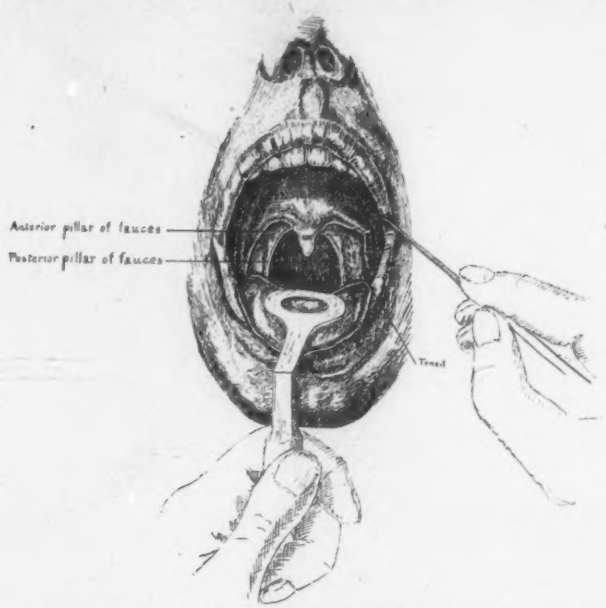


It will be found that these retractors have a much wider application than the diagnostic field. They will be found to fill a real need in the radical treatment which these tonsils require. There is, perhaps, no longer any question among laryngologists that the chief indication in the treatment, aside from safety, is the entire removal of all diseased tonsillar tissue. This means in many cases all tissue down to the aponeurosis of the pharyngeal constrictor, and the thorough cleaning out of the supratonsillar arch; and this means frequently, in the agglutinated and adherent cases, the creation of new pillars and indeed the removal of the entire tonsillar capsule.

Now, by whatever method or with whatever instruments this is done, whether by loosening the adherent pillars and as much of the capsule as is possible with scissors or knives in preparation for enucleation with the cold snare, or in preparation for cutting forceps or the curved scissors, or for use of the Freeman's or Myles' (recent) punches, indeed for all the preparatory or final work,

these retractors will be found to give a perfectly clear view of every recess of the field of operation.

As in the diagnosis, so even more in thorough operative work, comparative rest of the fauces and blanched tissues is necessary. This can only be attained by careful and pains-taking injections into the tissue, along every line where cleavage is to be made, of a proper combination of cocaine or encaine and adrenalin. I have found



these pillar retractors of very special service in making these injections effectively and safely. Places and lines along which severance is to be made are now easily accessible with needles properly angled and curved.

The retractors are also of distinct service in those tonsillotomies in children requiring general anaesthesia and the horizontal position where, on account of extensive adhesions, knives, scissors and punches are required.

The blades of the retractors may be made perfectly rigid; but for myself I prefer them made of the best quality of steel tempered to a slightly yielding degree. They are satisfactorily made by the F. A. Hardy and Company, Chicago.

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A CASE OF EPILEPTIFORM HYSTERIA, PROBABLE RESULT OF NECROSING ETHMOIDITIS.*

BY W. W. BULETTE, M.D., PUEBLO, COLO.

I bring this paper to the attention of the fellows of this Society, because I have found it intensely interesting, and further because, I believe that we assist each other in our noble profession by reporting these obscure cases, as they come under our care. It is unnecessary to enter into the aetiology, pathology or treatment of Epilepsy or Hysteria, because these subjects have been thoroughly discussed by our neurological brethren, and I do not wish to encroach upon their field or attempt to discuss subjects about which I know but little; in passing however, I do wish to pay homage to the learning of neurologists, and I admire them for the beautiful and wonderful diagnoses which they make.

The case is that of Miss A., aged 18, who first consulted me October 10, 1903, complaining of sick headaches, from which she had suffered for several years, but recently the headaches had become much worse, and were now often accompanied with nausea and vomiting, particularly after much use of the eyes for near work. I found vision O. D. 5-10; O. S. 5-7.5, with 3 deg. of Esophoria, media clear, both eyes, low, myopic astigmatism. I refracted the eyes without a mydriatic, and prescribed, for right eye—1.50 S.—0.50 C. ax. 180, and for left eye—1.00 S.—0.50. C. ax. 180.

I did not see the case again, until April 5th, 1905, at which time, I was asked by her family physician to see her at the hospital, where she had been confined for several months; the physician said "this girl has been having epileptic fits for the past two years, and I removed her ovaries a year ago, and have prescribed all the drugs that I know of; have had an eminent neurologist several times in consultation, and we can do nothing for her; she is having as many as twenty fits a day, see if there is anything the matter with her nose or throat."

Upon examinaion of the nose and throat, I found in the left naris, a large fibrous and bony mass, springing from the crest of the sphenoid and adherent to the middle turbinate, also the same in the right; the right nostril was well filled with a dry, stinking scab,

* Read by title before the Annual Meeting of the American Laryngological, Rhinological and Otological Society, Kansas City, June 11, 12 and 13, 1906.

which I removed, and observed pus oozing from the ethmoid region; the faucial tonsils were hypertrophied, and nearly touching each other, and by digital examination, I found the pharyngeal vault filled with adenoids.

The following day at 4 P.M. I removed the obstructing masses from the nares, the tonsils and the adenoids, under chloroform anaesthesia. I was advised by one of the attending nurses, that the day before I operated, the patient had ten epileptiform seizures; she took the anesthetic nicely and came out of it, without any unpleasant effects; on the sixth day after these operations, I had the patient brought to my private office, and opened the anterior ethmoid cells under cocaine. She was much prostrated from shock, for the next ten days, and was obliged to remain abed, but she had no more epileptiform seizures after the ethmoid was opened, and has had none since.

I reiterate, that this girl was having as many as ten convulsions a day, before she came under my care, had her ovaries removed at the instance of the attending family physician and the consulting neurologist, and had drug treatment *ad nauseam*, but without apparent benefit.

I submit the following history, gathered from the patient and relatives, for what it may be worth: Had measles, whooping-cough and diphtheria early in life; malarial fever four years, 1893 to 1897 inclusive; also facial erysipelas in 1893; no other disease of importance; has suffered from "Nasal Catarrh" for past ten years; in winter of 1900, had severe attack of La Grippe and was laid up several weeks; following this, the right nostril began to discharge a thick, yellow secretion, dull pain over bridge of nose and forehead, and occasionally in right cheek bone; subject to "colds in the head," pain is always worse and discharge more profuse, during these attacks.

In July of 1903, was thrown from a horse, falling on the face and right side of body; was not unconscious from the fall, and aside from a few scratches and bruises was apparently not severely hurt. Two weeks after this, while washing dishes, fell to the floor in a faint, and remained unconscious for four days; after getting up was weak, and had vomiting spells, with dizziness, followed in a few days, by a convulsion, or what the doctor, in the village where she then lived, called an "epileptic fit." These convulsions became more frequent, when she consulted the physician in September, 1903, who

referred the case to me, subsequently. The girl was under my care until January 1, '06, in all about ten months.

A few weeks after I opened the anterior ethmoid cells, she complained of the teeth of the right upper jaw being sore, and after careful percussion of them, and using transillumination, I decided that the right maxillary antrum was filled with pus. I opened the maxillary sinus through the inferior meatus, and washed it out for some three or four weeks, when the pus discharge ceased. I removed the posterior three-fourths of the middle turbinate, and thoroughly curetted the whole ethmoid region, as it proved to be a mass of necrosis, opening into the eye socket.

I am convinced, that the maxillary antrum, was not primarily involved, but that the pus passed from the ethmoid into the maxillary antrum below, because the pus promptly stopped flowing from the maxillary sinus after I had curetted the ethmoid region.

There was no history of syphilis, inherited or acquired; neither was there any family history of epilepsy, or other organic nervous affection.

I do not say that this girl is cured of her peculiar nervous affection; because the best authorities tell us, that subjects of epilepsy may be free from seizures for long periods of time, and suddenly relapse, on the least exciting cause; but, the fact that she was having so many fits daily before I operated, and that the seizures stopped so promptly after the ethmoid cells were opened and given drainage, and the intra-nasal pressure, in a measure relieved, would lead one to suppose that the suppurative, necrosing ethmoiditis may have been the primary and exciting cause of the epileptiform convulsions.

I saw the girl in one convulsion, and from the character of the seizure, would class it as of the hysteriod variety. It occurred just after I had finished washing out her nose the second day after the first operation, and while talking to me, I noticed her beginning to pick at the bed clothes, next trying to kick them off. She complained of palpitation and choking, tried to bite me, and said "it's coming." In a few seconds there was complete rigidity of the body, opisthotonos, several loud screams, the head turned completely under the shoulders. The fit lasted about five minutes; she came out of it crying, and completely prostrated; there was no micturation, or biting of the tongue or lips. I was informed that she was never known to bite the tongue.

One remarkable fact is that, although a considerable area of the inner wall of the eye socket was necrosed, and that the second day

after my curettement, pus formed at the inner canthus, and in the lower lid, there were no changes in the fundus, or diminution of vision.

This girl gained twenty-two pounds in weight while under my care, and is altogether a different person than when I first saw her. She was recently married, but minus her ovaries. I saw her last, May 1, 1906, and she had had no return of her former fits.

Conclusions. 1. This was a case of epileptiform hysteria, in all probability caused by reflex irritation from the necrosing ethmoiditis.

2. The case teaches how important it is to examine the nose and throat in every case of obscure nervous affection, and be able to recognize a pathologic condition when seen.

3. The "so-called" abdominal surgeon should not sacrifice a woman's healthy ovaries "as a last resort."

Physician's Building.

Some Cases of Fibrinous Coryza. G. DUPOND. *Journ. de mèd. de Bordeaux*, February 26, 1905.

Fibrinous coryza has been known only for about a dozen years. It is found more frequently in infants, but it is not always easy to ascertain the cause. It does not seem to be contagious. In the four cases reported by the author, a diphtheritic character was found in three, the cases presenting the usual characteristics of a false diphtheritic membrane. Fibrinous coryza is localized in the nasal fossae without involving the naso-pharynx. It runs a benign course without producing much effect upon the general health. In this it differs from true diphtheria which is always serious.

The treatment should consist of mild antiseptic washes or applications. Cauterization should be avoided.

SCHEPPEGRELL.

A CASE OF SUBMUCOUS HEMORRHAGE OF THE RIGHT VOCAL CORDS.

BY OSCAR WILKINSON, A.M., M.D., WASHINGTON.

The infrequency of submucous hemorrhage of the vocal cords together with the danger that might arise from an extensive hemorrhage in this locality, leads me to report this case.

Mrs. S., age 50 years, came to me on March 10th, with the following history:

On arising that morning her voice was as clear as usual and she had no special irritation of the throat. She was talking with a member of the family when suddenly her voice became indistinct; she felt a slight fullness in the larynx, but no pain. The fullness continued despite an effort to expell the offending substance. She had not spoken in a loud tone; had made no effort to clear the throat, and had not coughed.

The patient is rather a stout woman of a florid complexion and of good health, except she suffers from a chronic laryngitis for which she has been treated at intervals during the past four years. She suffered with two or three attacks of acute laryngitis during the past year for which I treated her. These attacks were associated with colds in the head and loss of voice. She usually recovered her voice in a week or ten days. At no time has she spit up any blood nor has she had any hemorrhage during these attacks of acute laryngitis.

On looking into the larynx, a submucous hemorrhage of the right vocal cord was to be seen covering the posterior four-fifths of the cord, giving this portion of the cord a bluish-red, decidedly puffy appearance, while the remainder of the cord was perfectly white and clear. The left cord was not even red, and was perfectly normal in appearance except for a slightly notched condition from the chronic laryngitis. Two days following the hemorrhage, the cord had asumed a darker appearance and was discolored throughout its length. The other cord remained normal. The cord cleared up entirely in the course of two weeks. The treatment consisted of mild oil sprays at first, with one or two applications of 2% nitrate of silver during the week, and an injunction not to use the voice.

The danger attending a submucous hemorrhage in the region of the vocal cords, of course, would depend upon how far it encroached upon the breathing space. In a condition where the mucous membranes were much relaxed from disease a submucous hemorrhage of the larynx might become a serious menace to life, and that with but little warning. An open hemorrhage of the larynx, and this seems to be the most common form, is not likely to be so serious as the submucous variety, as the swelling is not apt to be so great where the blood finds an outlet.

A hemorrhage of the larynx is no particular forerunner of any special constitutional disease. Dr. J. W. Gleitsmann[1], in his collection of hemorrhages of the larynx, did not find that it was a precursor of tuberculosis, or any other disease, but it seemed to occur in patients of full habits and those with some form of catarrhal laryngitis.

It can not be denied that the extravasation of blood is at times an indication of some constitutional disturbance. The exposure to draughts, and to varied temperatures might bring on an attack. Anything that would precipitate an acute laryngitis might bring on a hemorrhage of the larynx. Schroetter observed a submucous hemorrhage of the cord following an endo-laryngeal application of electricity. It is frequently the result of traumatism. It is usually a mark of some local irritation and it may be idiopathic. Gleitsmann sent a series of 57 letters in an effort to get the opinion of American laryngologists in regard to the relation of the various forms of laryngeal hemorrhages to tuberculosis. "The general tenor of the replies was that hemorrhages from the larynx can be regarded as a precursor of phthisis in exceptional cases only" (Gleitsmann). The information obtained would indicate that the majority of cases seen are not published.

The majority of cases reported are of open variety. The patients become excited from spitting up small quantities of blood associated with hoarseness and then consult the physician. This form of hemorrhage, as before stated, is not so serious as the submucous variety. Several deaths have been reported from the latter form, the patients dying from laryngeal stenosis. Pfeufer, L[2]., reports a case of death from submucous laryngeal hemorrhage; Bogros, M[3]., reports two cases and Otto reports one case. Bobil-

1 *Am. Journ. Med. Science*, 1885.

2 Larynxapoplexie. *Zeitschr. f. rationelle Med.*, vol. iii, 1845.

3 *Bull. de la Soc. anatomique de Paris*, 1848, p. 141.

lier, M[4]., reports a case of a man who died from a submucous hemorrhage which was due to an injury inflicted five days previously. Other cases of less severity have been reported by various men.

Very few cases of submucous hemorrhage of the cords are on record. One of the first cases reported was that by Schnitzler[5]. His was a case of pharyngo-laryngitis in a woman. He afterwards reported a case with extravasation of blood in both cords in a girl with diphtheritic paralysis. He also mentions two other cases in lady singers which occurred after great vocal exertion.

E. F. Ingalls[6] reports a case of submucuous infiltration of blood in the left vocal cord in a merchant who came to him complaining of sudden hoarseness and discomfort in the larynx. Sommerbrodt[7], saw a hemorrhage (with acute laryngitis) in both cords of a pregnant woman.

The special feature in the case above reported is that the hemorrhage came on in a perfectly healthy individual, without any apparent exciting cause. Outside of the rarity of the condition and the danger that might occur from the excessive submucous hemorrhage there is no special interest in these cases.

1404 L. St. N. W.

4 *Recueil de memoirs de medicine, de chirurgie et de pharmacie militaire*, vol. iii, 1820, pp. 140, 143.

5 *Wiener med. Presse*, No. 38, 1880, p. 399.

6 *Journ. Am. Med. Assn.*, 1884.

7 *Berl. klin. Wchnschr.*, No. 13, 1878.

PERFORATION OF THE SEPTUM NARIS.*

BY CHARLES W. RICHARDSON, M.D. WASHINGTON, D. C.

In this paper, it is my intention only to consider that type of perforation of the septum that has no known etiological factor and an indefinite pathological history. In a paper upon this subject which I read before the Laryngological section of the New York Academy of Medicine in November, 1901, I divided perforation of the septum into two distinct groups, viz.: 1. Those having a known etiological factor and a definite pathological history; 2. Those without a known etiological factor and an indefinite pathological history. Under the first group may be classed congenital perforations; traumatic perforations; those perforations due to pressure exerted by new growths; and that large group of perforations occurring in the course of general or infectious disease, as the syphilitic, the tubercular, etc. The pathological process, by which destruction of more or less of the septum is produced in the first group, is characteristic of the pathological changes produced by the general condition as it affects similar tissue wherever located. Under the second group, we have no definite assignable cause for the perforation, and almost as little do we know of the pathological steps between the disturbance of the integrity of the mucosa to the actual production of the perforation through the cartilage. This class of cases are the ones to which, in particular, I direct your attention.

During the past ten years I have been carefully investigating the history of all cases of septal perforations coming under my observation, and the more I investigate this subject the more do I become impressed with the fact that the many accepted views with regard to the causation of these perforations are not always tenable. In none of my cases can the condition be assigned to the irritation or caustic action of acids, or chemicals. In only a few was there ever any history of obstruction, therefore, no possible irritation from mechanical causes, or continued and persistent local trauma. The great obstacle to the thorough understanding of this subject is, as in atrophic rhinitis, that no investigator has been able to follow up a sufficient number of cases from their inception to the actual termination of the disease process. All who have done much surgical

* Read before the 28th Annual Congress of the American Laryngological Association at Niagara Falls, May 31, June 1 and 2, 1906.

work upon the septum have noted, when injury is done to the septum at its anterior inferior portion, how imperfect is Nature's effort at repair. If the injury be great and the solution of continuity through both mucous surfaces at the above designated point is complete, the tendency to molecular disintegration with perforation is greater than is the tendency to repair with restoration. In the several cases that we have noted of commencing perforation of the septum of the second group, we have been impressed with the fact that this process of ulceration continues to extend until the normal nutritive changes are sufficiently strong to resist the onward encroaching ulceration. This region is particularly subject to disturbance of its local enervation on account of its being constantly subject to irritation and injury, and from the fact that it is the first portion of the nasal mucous membrane to receive the impact of the incoming column of air. The mere influence of local irritation and the varying condition of the incoming column of air within themselves could have no determining influence on the integrity of this tissue other than probable changes in the epithelial and glandular structures. There must be some determining constitutional condition, which, in a certain series of cases, lessens the normal nutritive activity of the affected tissue, so that ordinary sources of local irritation continually present may lead onward to further destructive changes. It cannot but be accepted that certain constitutional disturbances impress or influence the inervation of certain tissues or organs so that they become subject to pathological changes, which most frequently show the usual pathological characteristics of the affecting lesion, yet at other times do not bear these evidences.

After a thorough investigation of the many cases of septal perforation which have come under my observation, I have been forced to the conclusion that there must be some constitutional disposing cause giving rise to many of these. We can not throw lightly aside the evidence given by numerous observers as to the many changes which lead up to the development of the ulcer, that is, the local vascular changes such as hemorrhage into the mucosa, xanthosis, thrombosis, and coagulation necrosis, all of which indicate a local impaired nutritive change in the mucosa, because such changes are frequently observed in those cases which do not produce ulceration or terminate in perforation. Independent of the local change present, there must be, as I have already stated, some constitutional determining causes which, in a certain series of cases, lessen the normal nutritive activity of the affected tissue so that

the molecular disintegration or ulceration takes place, such ulceration extending until the normal nutritive changes are sufficiently strong to resist the onward encroaching ulceration. It seems quite consistent to suppose that, during the severity of the typhoid, or typhus, such a lowering of the nutritive activities may take place in the septum, as well as any other tissues, so that local changes already present might lead on to further destructive changes. There is no doubt, also, that there is something imparted to the tissues, especially of the fibrous and epithelial type in the tubercular or tubercularly inclined, which renders them, when the nutritive changes are low, liable to changes of a retrogressive or destructive nature. In my original report, I gave seventeen cases of septal perforations which had no assignable cause, in a large percentage of the bearers of which there was to be traced a distinctly tubercular history. The proportion of 68 per cent of these had histories with tuberculosis, or manifest evidences of tuberculosis in the person affected. Since my report, I have collated fifteen cases of perforations occurring in cases which belong to the second group.

Case 1. A young woman eighteen years of age; perforation involving a large portion of the quadrangular cartilage; hemorrhage existed since early childhood. No deflection. Traced to a typhoid.

Case 2. Young woman thirty years of age; large perforation, cicatriced. Perforation had existed for many years; does not know when she was not conscious of it. Strong tubercular family history. Patient infected.

Case 3. Gentleman sixty-eight years of age; large perforation, healed edges cicatriced; dates from early childhood. Both parents and brother died of tuberculosis.

Case 4. Man forty-eight years of age; moderate size perforation; strong family history of tuberculosis. Patient went to the west when a young man "for the purpose of saving his life."

Case 5. Young woman twenty-one years of age; small oval perforation; healed margin. This perforation was accidentally discovered while making the usual routine examination for tuberculosis. Patient, after spending a year in the Adirondacks, returned to Washington perfectly restored in health.

Case 6. Woman forty years of age; large perforation. Never able to obtain satisfactory history. Patient cocaine and morphine fiend.

Case 7. Man forty years of age with a large perforation. Was called to see this patient on account of the condition of his ears. Never was able to get satisfactory family history; denied all tuberculosis. Patient was operated on for various conditions of the kidney and bladder; died of chronic septicemia.

Case 8. Gentleman seventy years of age; large perforation and supposed to have had tuberculosis when a young man; mother and brother died of tuberculosis.

Case 9. Woman sixty-five years of age; large perforation, clean cut borders, healed. Perforation has always existed. Died of tuberculosis shortly after coming under my observation.

Case 10. Young woman thirty years of age; moderate size perforation. This perforation has taken place since I saw her some ten years ago. Has tuberculosis; spent year or more in the Adirondacks.

Case 11. Young married woman thirty-two years of age; large perforation; father tuberculous.

Case 12. Maiden woman forty-two years of age. It is interesting to note that I saw this young woman about four years ago, when a commencing ulceration was showing itself in the mucous membrane. I made all efforts to get rid of this ulceration and thought I had healed the place and she went from under my observation. About six months ago she returned to me and I found a large perforation of the septum. Mother and sister died with tuberculosis.

Case 13. Young woman twenty-six years of age; moderate size perforation. No distinct tuberculosis in the family. Patient looks strumous; does not know when perforation occurred.

Case 14. Young woman twenty-two years of age; large perforation. Patient consulted me on account of tuberculosis.

Case 15. A young woman twenty-two years of age; small size healed perforation; said to have occurred during an attack of typhoid when she was twelve years of age.

In an analysis of the fifteen cases above narrated, it will be noted that in eleven there was either the direct physical evidence of tuberculosis in the affected individual, or that the perforation took place in the individual who we might say had well-marked family history of tuberculosis. These fifteen cases, added to the seventeen

reported in my previous paper, make thirty-two cases, with a total of twenty-two cases in which tuberculosis was more or less in evidence, with ten without such evidence. This occurrence of 66 per cent of perforation in individuals of a tuberculous or tubercular predisposition must be more than a mere pathological coincidence. Also the findings made by Weichselbaum and Hajek upon the cadaver more than prove the deduction which I have drawn from observation upon the living.

To me it seems as though the process is one that is predisposed by impaired nutritive action in the mucous membrane covering the cartilaginous septum as well as in the cartilage itself, such nutritive change being induced by diseases which impair the general nutritive activity by their ataxic type, as typhus, typhoid, and kindred diseases, or by tuberculosis and the tubercular diathesis. Tuberculosis and the tubercular diathesis, as is well known, impress upon various tissues and organs of the body such alteration in their nutritive processes that when the proper stimulus is applied, they lead to degenerative changes which may or may not show the characteristic histologic elements of tuberculosis.

We all frequently observe during our routine work the various changes which have been described by Voltolini, Zuckerkandl, Weigert and Hajek as affecting the mucous membrane of the septum, many of which endure for years without change, many heal, and a few ulcerate with destructive perforation of the septum. That the greater percentage of cases show no lethal activity in the mucous membrane or cartilage of the septum is, I think, due to the fact that the nutritive activity in the cartilage and mucosa is normal. When this is abnormally lowered, due largely to the predisposing conditions above mentioned, we have the lethal changes resulting.

1317 Connecticut Ave.

FRONTO-NASAL ENCEPHALOCELE.*

BY F. E. HOPKINS, M.D., SPRINGFIELD, MASS.

Encephalocele, or Hernia Cerebri, has interest for the rhinologist, when it appears at the root of the nose. This interest is increased by the fact that to present itself in this region it probably must first enter the nasal cavity through the cribriform plate of the ethmoid whence it protrudes externally through a fault, or failure of development, in the nasal bones. This course for the hernia would be anticipated from the anatomy of the region and is proven by the records of post-mortem examination in reported cases.

Cerebral hernia is of rare occurrence and that appearing anteriorly is especially rare. Mittendorf[1] refers to ninety-three collected cases of which only sixteen were of fronto-nasal origin. One of the theories of cerebral hernia assigns as a cause a failure of development in the cranial bones, and if the tumor appears at the root of the nose a failure in development in the nasal bones as well, with a consequent protrusion of cerebral contents. Another theory ascribes the cause to hydrocephalus occurring in the foetus, when the yielding structures of the cranium are not able to withstand the pressure of the accumulating fluid. Still another suggests the prolapse of a fold of the dura through a sutural gap before union of the bones has taken place. Chamberly[2] who gives a full report of one of these cases together with pathological findings, sensibly suggests than in a given case doubtless more than one of these causes unite to produce the defect. In none of the recorded cases, do I find reference to a nasal examination; but from the reports of the findings on post mortem, it is probable that the tumor could have been seen in the upper portion of the nasal cavity had examination been made. In two of these cases the record shows that the hernia left the cerebral cavity through an opening in the anterior portion of the cribriform plate of the ethmoid bone, and appeared externally through defects in the nasal bones. In Chambrely's case, the opening in the cribriform plate was of the size of a franc piece; and in Demme's case[3] the tumor being centrally located, the opening

* Read before the 28th Annual Congress of the American Laryngological Association, Niagara Falls, May 31, June 1 and 2, 1906.

1 *Med. Rec.*, 1890, vol. 37, p. 374.

2 *Bul. Soc. de Anat. et Physiol. de Bordeaux.*, 1886, vol. viii, pp. 66-72.

3 *Med. Ber. u. d. Thaetigk.*, vol. xiii, pp. 65-67, 1 pl.

through the nasal bones was 2½ cm. long and ¾ cm. broad. These cases fell into the hands of general surgeons, and in neither of them is reference made to nasal symptoms. In one there was partial blindness from the overhanging masses of the tumor, and in the other from atrophy of the retina, due to pressure.

My own case differed from any I have been able to find recorded, in that the symptoms were almost wholly nasal. On September 20th, 1905, Mrs. C., referred to me by Dr. Sweet of Springfield, brought to my office an infant aged 11 months. The child did not appear to be in vigorous health yet was fully developed and would not attract especial attention because of any deviation from the normal, except for the fact that there was a small swelling over the right nasal bone. This prominence was present at the birth of the child and was diagnosed as a cyst. Relief was sought because of obstruction to nasal respiration in the right fossa, and because of catarrh also referred to this fossa. This complaint of catarrh deserves especial mention because of subsequent developments. The mother stated that a clear watery fluid seemed constantly present in the right fossa. This did not flow from the nostril to any extent because of the blocking of the vestibule, but evidently drained backward into the child's throat. About three months previous to this time, according to the history given, polypi had been removed from this side of the nose giving temporary relief, but since the recurrence of the growth the symptoms were more troublesome than ever. The right fossa was found to be completely occluded by a neoplasm projecting in the vestibule. The color and character of this tissue suggested malignancy, and I proposed operation under ether. The mother readily consented to this and stated that she wished Dr. Sweet, who is a surgeon, to remove the external tumor over the nasal bone at the same time. The child was taken to the Springfield Hospital, and on the morning of September 26th, 1905, was etherized. I suggested to Dr. Sweet that it would be wiser to do the intra-nasal work first, that the external wound and dressings might be free from the possibility of disturbance. The neoplasm was found to extend into the fossa to a depth of ½ inch and was apparently attached to the outer wall, near the anterior end of the inferior turbinate. The small mass was removed with a cold wire snare and the supposed pedicle trimmed down smoothly with a pair of cutting forceps. Examination now of the deeper parts of the fossa by reflected sunlight, revealed to my great surprise, a globular tumor at the level of the middle turbinate, about ⅝ of an inch in diameter,

perfectly smooth, of a grayish color and semi-translucent. The removal of the neoplasm filling the vestibule had evidently lessened the pressure on this mass and the external swelling was observed to be less prominent. Pressure made with a cotton-tipped probe against the globular tumor within the nose caused an increase in size of the external one, while pressure with the finger externally was conveyed to the mass within. Diagnosis of cerebral hernia was made, and as no operation promised relief for the case, nothing further was done. Nasal respiration was restored and as the external tumor was less pronounced, the parents were much pleased with the results of the operation. Dr. Sweet and myself were less happy. After the removal of the small mass which occluded the vestibule cerebrospinal fluid dripped constantly from this nostril at the rate of about four drops a minute. The child became ill on the fifth day and at the end of two weeks died of meningitis. The following is a report by Dr. Jonathan Wright to whom a section was submitted: "It is difficult to make out from these sections the nature of the growth. I am disposed to think, however, that it is an oedematous polyp. I see nothing malignant in it." A few days later after further history he wrote: "With your further history I should think very likely the tissue is a part of the meninges as it contains more fibrous tissue and cellular elements than an oedematous polyp. At one point the tissue is covered by columnar epithelium. The stroma itself is so macerated and the cells so shrunken it is difficult to be sure of anything, except that it is probably not a neoplasm of any kind."

This case is submitted as a curiosity rather than because such lesions contain practical possibilities of relief at our hands. The rate of mortality from operation upon cerebral hernia is high, though less so than before the days of asepsis, and a recurrence often follows, even when the primary operation is successful. If the protrusion is into the nasal cavities the idea of operation is not to be entertained.

25 Harrison Ave.

REMOVAL OF AN OPEN SAFETY PIN FROM THE ŒSOPHAGUS.

BY FRANK LOUIS STILLMAN, M.D., COLUMBUS, OHIO.

The following case is deemed worthy of detailed report, because the removal of an open safety pin with the aid of oesophagoscopy must have been done but seldom. I do not remember to have read of just such a case where the circumstances allowed ideal relief to be given. In his recent work[1] Dr. Hugo Starck of Heidelberg, gives a tabulated list of the reported cases of foreign bodies removed from the oesophagus. He does not mention one similar to this. Chevalier Jackson[2] mentions a similar case in which a gastrotomy was done and the pin pushed down and removed from the stomach.

On May 8, 1906, Dr. Francis Blake asked me to bring my set of oesophagoscopy instruments to his office, as there was a man there with a safety pin in his throat. I reached there at 5:30 p. m. and found the patient to be a man about 40 years of age, from London, Ohio. The following history was obtained: He had gone to sleep the night before with a safety pin in his mouth. During the night he choked and his wife proceeded to investigate. She saw the pin in his throat and attempted its removal with a knitting-needle, but only succeeded in pushing it down out of sight. He was then brought to Columbus and Dr. Blake was consulted. When he saw that the foreign body was below the larynx, he had a radiograph made by Dr. Bowen. This showed the pin at the notch of the sternum quite distinctly. The point was open, pointed upward, and seemed to press into the tissues of the left side of the neck.

In a preliminary examination with the laryngoscopic mirror I found the patient inclined to retch and stiffen his tongue. Nothing having been seen with the mirror, or felt with the finger, a 20% solution of cocaine was rubbed on the soft palate, pharynx, base of tongue, epiglottis, and entrance to the oesophagus.

First I passed a short oesophagoscopic tube containing a bougie with a long conical tip. I did not see the pin, but as the tube was slowly withdrawn I caught a glimpse of its hooded end. It looked dark like gunmetal and was highly polished. The pin was seen at a distance of 13cms. from the front teeth. The patient swallowed convulsively and drew away from the tube, thus preventing immediate

1 Œsophagoskopie, 1905, p. 201.
2 THE LARYNGOSCOPE, April, 1905, p. 267.

extraction. Several introductions of the tube failed to bring the pin into view, but each time that the end of the tube reached 13cms. from the teeth the patient winced with pain. He said the pressure of the end of the oesophagoscope pushed the point of the pin into the tissues of the left side of his neck. As the point corresponded to the radiographic location and also to the point where I had caught a glimpse of it, there seemed to be no doubt of its presence at just that point. Several unsuccessful attempts were made to find the pin with a short tube. Each time the tube was introduced he complained of much pain from the driving of the pin into the tissues. Finally it dawned upon me that the pin must be further down and that the tender place might be from the pricking it had previously received. Acting upon this idea I selected the 40cm. tube and passed it into the entrance of the oesophagus. The bougie was then withdrawn and the tube was slowly pushed down. The object sought did not appear until the lower end of the tube was 25cms. from the teeth. As soon as the hooded end of the pin came into view the tube was held steady while my longest forceps was passed. This forceps was for the purpose of nipping out pieces of tissue for microscopical examination, and the grasping ends were small hemispheres.

This made an ideal instrument, as the pin was grasped firmly in the depressions present in the sides of the hooded end. As soon as the pin was grasped the end of the tube was pushed to the side of oesophagus opposite the point of the pin. The body of the safety pin was then drawn partly up into the end of the tube, and everything drawn up and out. As the tube came out a sensation was imparted to the hand as if the bent-back point of the pin vibrated against the side wall of the oesophagus several times, but there was no retardation of its outward progress, showing that the point probably did not hook the mucous membrane.

It was found to be an ordinary safety pin 1½ inches long and 1¼ inches across the open end. The patient has remained perfectly well since his unpleasant experience.

The work was done with the patient supine upon an operating table, though the passing of the first tube was done while he was seated upon a low stool. The source of the direct illumination was a Kirstein electrical head lamp, and the instruments were Killian's model purchased by me from Fischer, surgical instrument maker in Freiburg.

The pin at the beginning of the examination was higher than it was when extracted. It had either been swallowed further by the patient or pushed down by the first passage of the bougie and tube.

Either occurrence would be favored by the force of gravity, so it is better to have the body horizontal during extraction of foreign bodies from the oesophagus.

The ease with which this foreign body was extracted teaches a lesson which to me is very plain by reason of a contrasting case which recently came into my own experience. In that case a boy had had a five-cent nickel in a like place in his oesophagus for a week. It was shown to be there by a radiograph, and repeated attempts at its removal had been made by the family physician. A surgeon was called to do an oesophagotomy. He wished me to try oesophagoscopy before cutting was resorted to, but he required that the oesophagoscope should be passed without the projecting bougie, for fear of pushing the coin further down and thus making more grave the cutting operation, which he felt almost sure would be required. The parts were so swollen that the tube could not be passed even under a general anaesthetic. The boy was then operated externally and the coin removed, but unfortunately he did not long survive.

The lessons from this case are quite obvious, but there is no harm in reiterating the fact that one is not justified in using crude methods for the extraction of foreign bodies, if anyone within reaching distance, who is better prepared to do the work, is thereby hindered in removing it.

These cases should be published because the body of physicians will thereby gain more confidence in the efforts of laryngologists along endoscopic lines, and the knife with its high mortality in these cases, will be recognized as not nearly as valuable an expedient as the oesophagoscope, and will be used as the last resort.

118 East Broad Street.

TWO CASES OF BONE IMPACTED IN THE LARYNX.*

BY J. M. INGERSOLL, A.M., M.D., AND DUDLEY P. ALLEN, A.M., M.D.,
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Foreign bodies in the larynx usually cause such distressing symptoms that relief is hastily sought and, in most cases, promptly secured by the removal of the foreign body.

Quite a number of cases however, have been reported in which a foreign body has remained in the larynx for a period of time varying from a few months to several years. One of the characteristic features of such cases is the fact that the larynx soon shows a remarkable tolerance for the foreign body. If there has been no interference with phonation or respiration, the primary laryngeal irritation may be entirely forgotten by the patient and the persistence and severity of the symptoms caused by the secondary pathological conditions in the larynx or in the bronchi and lungs, mask completely the primary cause of all the trouble.

Case I. In a case recently seen by us, we must frankly confess that the possibility of a foreign body in the larynx was not considered at any time until it was found at the autopsy. The patient was a well-developed man, thirty-seven years old. He was brought to Lakeside Hospital one night on account of marked inspiratory dyspnoea. The difficulty in breathing had begun eight days before and had steadily increased. A few hours after his admission to the hospital, he became cyanotic and it was necessary to do a tracheotomy at once. The following day, an examination of the larynx revealed a complete bilateral abductor paralysis. As the cords were in apposition, no view of the inferior part of the larynx or the trachea was obtained. The larynx, above the cords, was inflamed and two ulcerations were seen. Moist rales could be heard throughout the chest and there was some increased dulness at the right apex. Otherwise, the man was in good condition. He had had syphilis several years before.

It was thought that the laryngeal paralysis was due to pressure from a gumma, for in the absence of any demonstrable cause this seemed to be quite probable, especially as the man had a syphilitic history, and so he was given iodide of potassium. This had no effect upon the laryngeal paralysis. The condition in the lungs

* Read before the 28th Annual Congress of the American Laryngological Association, Niagara Falls, New York, May 31, June 1 and 2, 1906.

grew steadily worse and the patient died of septic pneumonia about one month after his admission to the hospital.

The autopsy was made by Dr. David Marine, resident pathologist, to whom I am indebted for the following abstract of the post-mortem findings.

ANATOMICAL DIAGNOSIS.

1. Foreign body (bone) in the larynx, lodged in an ulcerated cavity situated posteriorly and transversely between the cricoid cartilage and the oesophagus.

A Piece of Bone Impacted in the Tissue Around the Larynx.

Case. I. The larynx has been opened anteriorly a little to the left of the median line. The piece of bone is shown projecting out beyond the right side of the larynx. On the posterior wall of the larynx, there is a deep ulcerated cavity through which the piece of bone can be seen. Just above this cavity, a superficial ulceration, covering almost all of the inter-arytenoid space, is shown. Another superficial ulceration can be seen above the posterior end of the right vocal cord.

2. Consolidation with necrosis and liquefaction (gangrenous abscess) of the lower and middle lobes and lobular consolidation of the upper lobe of the right lung.
3. Chronic quiescent tuberculosis of the left apex.
4. Acute hemorrhagic bronchitis and trachitis.
5. Gumma of the right lobe of the liver.
6. Moderate acute splenic tumor.

7. Cloudy swelling of the liver and kidneys.
8. Chronic atrophic gastritis.
9. Tracheotomy wound.
10. Early arteriosclerosis.
11. Chronic thyroiditis.

In the posterior wall of the larynx, a little below the vocal cords, there was an ulcer, about two centimeters in diameter, opening into a cavity containing a piece of cancellous bone which extended two-thirds of the way around the larynx. The edges of the ulcer were cicatrized showing that it must have existed for some time.

The piece of bone was irregularly triangular in shape, about five centimeters long and two centimeters wide in its greatest measurements, and its average thickness was about one-half of a centimeter. It was curved on its flat surface and the concavity was turned toward the larynx.

The oesophagus was intact and its mucous membrane was normal. If the piece of bone had passed from the oesophagus into the tissue around the larynx, the oesophagus would have contained some cicatrix.

It seems probable therefore, that the piece of bone had fallen into the larynx while the patient was eating and then had worked its way through the posterior wall of the larynx into the position in which it was found at the autopsy.

The man gave no history of such an accident having occurred, but this is apparently the only possible explanation of the presence of the piece of bone in the larynx. The accident had probably occurred several months or a year before the laryngeal paralysis developed and it had been forgotten by the patient so that he did not attribute the difficulty in breathing to any previous laryngeal condition.

The bilateral abductors paralysis was caused by inflammatory induration and pressure of the bone on both recurrent laryngeal nerves. The pneumonia and gangrene of the lungs were due to the septic infection from the larynx.

The cicatrized edges of the ulcer and the position of the bone, buried deep in the tissue around the larynx, both bear evidence to the fact that the bone must have been in the larynx a long time.

Case II. The following case was seen by Dr. Dudley P. Allen, ten years ago, but has not been reported before.

The patient was a married man, thirty-one years old. He had always been healthy and had had no serious trouble with his throat. On the 12th of February, 1896, he noticed some difficulty in speak-

ing and by the 16th of February, he was unable to speak above a whisper. He began to notice some inspiratory dyspnoea which continued until the time of operation in July. At times, the dyspnoea was quite marked.

On April 13th, he went to Hot Springs, Arkansas. A diagnosis of syphilis was made and he was given large doses of iodide of potassium and also had inunctions of mercury daily for forty days. He returned home on May 26th, and a laryngologist who saw him then thought that the condition in the larynx was malignant.

He entered Charity Hospital on May 31st, and a tracheotomy was performed to relieve the dyspnoea. He was given anti-syphilitic treatment again but a careful study of the case led to the conclusion that it could not be specific, and there did not appear to be any positive evidence of its being a malignant growth of the larynx. The appearance of the larynx was difficult to explain. A grayish roughened surface could be seen below the vocal cords, and the latter were injected and thickened.

The question of extirpation of the larynx was considered, but before doing this, it was thought wise to split the larynx in order to ascertain more definitely the exact nature of the disease. On July 2nd, the larynx was divided in the median line and an irregularly shaped piece of bone was found imbedded in the right side of the trachea just below the larynx.

The bone was a little over two centimeters long and about one centimeter wide. In splitting the larynx, the anterior attachment of the right vocal cord was somewhat injured, so that it was stitched into place with a catgut suture. The trachea was then united and the incision closed. The tracheotomy tube was left in place for about two weeks after the operation. It was then removed and the patient was discharged.

He did not know when the piece of bone had fallen into his larynx; he did not remember having had any attack of choking or severe coughing nor had he been intoxicated and thus offered a chance for the bone to become imbedded in the trachea without his being conscious of it. His relief after the operation was immediate and complete.

The patient was re-examined on May 3rd, 1906. He has been perfectly well since the operation. The larynx seems to be about normal. Both vocal cords move freely and meet each other in the median line. He says that he cannot speak as loud as he could before the operation and his voice tires a little more easily.

318 Euclid Ave.

PAPILLOMA OF LARYNX FROM INHALATION OF FLAMES.*

BY A. B. THRASHER, M.D., CINCINNATI.

In the fall of 1900, Mr. R., of Cynthiana, Ky., consulted me for aphonia. Two months before, he had been injured by an explosion of gas in the cellar of his drug store. He was rendered unconscious, and when carried to fresh air it was seen that his face and mouth were severely burned and his breathing impaired. He had a severe inflammation of the face, mouth, throat, and air tubes, apparently extending to the smaller bronchial tubes, from which he made a slow recovery. His voice had become more or less impaired, and when he came to me he was nearly aphonic.

The facial integument was still inflamed and red in patches. He had about recovered his general health, but his voice was growing worse. He would have dyspnea on exertion, which he attributed to his recent illness.

Examination revealed some redness of the fauces and of the epiglottis and ary-epiglottic folds. Springing from the ventricles were a number of granular tumors which almost completely obstructed the view of the vocal cords. This was especially true of the anterior portion. A portion of the left cord near its attachment to the arytenoids could be seen, the inner edge of which was slighly reddened. Between the cords and just below, a couple of small reddish bodies could be seen during forced inspiration. I removed a portion of the supraglottic growth and submitted it to a pathologist, who reported that it was a papillomatous neoplasm with some intermixture of granulation tissue.

The growths were removed by forceps, a few at a sitting, the operation being stopped each time by rather profuse hemorrhage. I applied a ten per cent solution of nitrate of silver to the base after each operation. After a few months the larynx was sufficiently cleared to see both vocal cords and his voice became stronger.

I lost sight of the patient for some months, and on seeing him again, his voice was quite normal and he said he was entirely well. I did not have an opportunity of examining his larynx.

* Read before the 28th Annua Congress of the American Laryngological Association Niagara Falls, May 31, June 1 and 2, 1906.

This case was to me of considerable interest, and I therefore take a pleasure in reporting it to this body. The doubt that has been so often expressed as to the inflammatory origin of laryngeal papillomata seems to me to be cleared, as far as this one case is concerned. There was evidently a severe inflammation, caused from the burning gas, and the papillomata grew as a direct consequence from the inflamed mucosa.

"The Groton," 7th and Race Sts.

Suppurations in the Temporal Bone, and their Practical Relation to Life Insurance. J. F. BARNHILL. *Med. and Surg. Monitor.* September, 1905.

Mortality statistics do not represent the full mortality due to ear discharges, because of the failure to recognize the relationship between cause and effect.

To decide whether an applicant with a running ear is insurable or not one must take into consideration both the symptoms obtainable, together with the absolute facts obtained from the most thorough painstaking and accurate examination of the middle ear and its accessory cavities.

Headaches, fits of irritableness of dispositions, or of dizziness, lessen the degree of safety of the risk. The presence of cholesteatoma should never be considered a safe risk. Occlusion of the canal from chronic thickening of the skin, osteoma or foreign body, and existence of one or several fistula in the canal, are conditions that make the individual with a chronic suppurative ear, unfit for insurance.

STEIN.

A RARE FORM OF TUBERCULAR LARYNGITIS. TUBERCULAR WEB BETWEEN THE VOCAL CORDS.

BY SYLVAN ROSENHEIM, M.D., BALTIMORE, MD.

The extreme rarity of this condition and the nature of the pathological findings were the incentives to the publication of this case. Consultation of the text books and monographs of Mackenzie, Gottstein, Rosenberg, Bosworth, Kyle, Laurens, Heymann and Lennox Brown fail to throw any light on the subject. Shurly speaks of the infrequent occurrence of cicatricial contraction in the larynx that may follow tuberculous ulceration.

Moritz Schmidt states that he has frequently observed adhesions between the anterior parts of the vocal cords of tuberculous nature. He has also often seen processes of scar tissue between the posterior ends of the cords, which stretched as unilateral or bilateral bands towards the posterior wall. These did not form in themselves an obstacle to respiration but rendered it more difficult in that they interfered with the movements of the vocal cords.

Tuberculous ulcers heal less frequently than syphilitic, consequently one sees scar tissue less frequently after ulceration of that nature. These webs are almost always the result of syphilis, rarely of scleroma. They usually begin at the anterior angle of the glottis and proceed backwards until they reach the processus vocalis. A complete closure never occurs.

Similar membranes also occur congenitally. Schmidt mentions thirteen cases collected from the literature. They are not so thick as the scar like variety. Laryngeal membranes also arise as the result of surgical procedures and suicidal attempts.

The patient, J. Mc. K., aet. 36 years, was first seen at the Johns Hopkins Hospital Dispensary in June, '05.

Diagnosis. Tuberculosis pulmonum et laryngis. Laryngeal Web.

Complaint. On admission, the patient complained of loss of voice, weakness and pain in the chest.

Family History. No history of tubercolosis in his own or his wife's family.

Past History. The patient was a fireman in the Baltimore Fire Department before his present illness. He denies having had lues or gonorrhea. He has smoked cigarettes to excess previous to this illness, but has not smoked in the last year. He takes about two

drinks of whiskey a day. As far as he knows he has not associated with any tuberculous patients.

Present Illness. About two years ago the patient had what he called "bronchitis." He had a slight cough and expectoration, but no pain. At that time part of his uvula was removed. In February, 1904, he was exposed, in his occupation in the great Baltimore fire. Two months later he began to have a very bad cough, which was painful at times. He brought up green blood-streaked sputum. At that time there was no haemoptysis. There was considerable dyspnoea, which was increased on exertion, but he had no chills or fever. He has been hoarse for over a year and now has no voice, speaking in a whisper. During the last year the patient has lost 37 pounds in weight.

From Drawings made December 5, 1905, by T. Chew Worthington.

Physical Examination. Medium sized man, weight 125 pounds, general appearance good. Temperature 100.4°, pulse 110, Resp. 28. No glandular enlargement. No signs of old tuberculosis; chest well shaped; circumference at nipples 845 cm.; on inspiration 87 cm. Right side clear on percussion and auscultation. On the left side, in the supraspinous fossa and above the clavicle, the note is higher pitched, the breath sounds are harsh and expiration is prolonged Moist rales are heard below the left clavicle. The heart is normal.

The pharynx is atrophic. Remains of uvula seen.

Larynx. The arytenoid bodies are tremendously swollen, very pale and pear shaped. The ventricular bands are so thickened as to render it impossible to see into the larynx.

He was put on tincture of nux vomica and given intra-tracheal injections of menthol and guiacol in olive oil. He was given directions to lead a quiet out-door life and put on a nourishing diet. He did not attend the throat clinic during the summer months, but was seen a number of times in the Phipps tuberculous dispensary by Dr. Louis Hamman. During this time he suffered considerably with pain in his throat.

A laryngeal examination on October the 18th, four months from the time of the first examination, revealed the following: The arytenoid bodies and the false cords are still markedly thickened, but not nearly so much as at the first examination. The vocal cords are plainly seen; they are somewhat thickened and slightly injected; the anterior two thirds are firmly connected by a reddish web, which on palpation is felt to be very firm The condition of the larynx is well shown by the drawings of Dr. T. Chew Worthington, who saw the case when demonstrated at a meeting of the Laryngological section of the Medical and Chirurgical Faculty of Maryland, in November, 1905. On the first of December, a small piece of tissue was removed from the right artyenoid body for microscopical examination. This place is indicated in the drawing. Almost the entire web was removed on December the sixth with Landgraff's laryngeal cutting forceps. After this operation the patient experienced immediate improvement in his breathing and his general condition. Both this wound and that from the first operation healed promptly. The patient did very well for a time but his visits to the dispensary ceased the latter part of the month. He was seen a number of times in January, '06, by the district nurse, when he was extremely weak and confined to his bed. He died the latter part of that month from general asthenia.

The history of this case has been made more complete by a note from Dr. R. H. Johnston who saw the patient at the Presbyterian Eye, Ear and Throat Charity Hospital on July 2, 1904. The diagnosis then made by him was "Tubercular Laryngitis. Ulcers of Both Vocal Cords." He then gave a history of hoarseness, tickling in the throat, cough and expectoration for over one year. There was some shortness of breath. He had had night sweats and bloody expectoration. The laryngeal examination revealed a decided infiltration of both arytenoid bodies and infiltration and extensive ulceration of both vocal cords.

The duration of the laryngeal trouble is traced in this case over three years and nature was taking care of it by encapsulation of

the tubercles and cicatrization. As frequently happens in these cases, the patient succumbed to the pulmonary trouble.

Microscopical examination of the part of the arytenoid body removed at operation revealed the tuberculous nature of the process. The epithelium, of the stratified columnar variety is intact. Just beneath it, are numerous exquisite miliary tubercles. These tubercles are definitely enclosed in capsules. The intervening tissue is of the nature of granulation tissue of various ages; in places young round cells being more abundant, in others spindle shaped and elongated fibrous cells.

A section taken through part of the web shows that it also is tubercular tissue. Beneath a lining of stratified squamous epithelium is fibrous like tissue in which are enclosed a couple of poorly defined tubercles.

522 North Charles St.

The Use of Perborate of Soda in Oto-Rhino-Laryngologic Practice.

M. BLOCH. *Archiv. internat. de laryngol.*, May, June, 1905.

The perborate of soda is a white powder which corresponds to the combination of the peroxide of hydrogen with the borate of soda and which gives, on being dissolved in water, peroxide of hydrogen and borax. This powder is slightly alkaline and therefore does not irritate the mucous membrane or the skin. It does not macerate the epidermis of the auricular canal and may easily be carried to the point desired. The author has found marked benefit from its use in acute suppurative otitis and chronic catarrh.

SHEPPEGRELL.

SOCIETY PROCEEDINGS.

LARYNGOLOGICAL SOCIETY OF LONDON.

One Hundred and Seventh Ordinary Meeting, June 1, 1906.

CHARTERS J. SYMONDS, F.R.C.S., PRESIDENT, IN THE CHAIR.

The following communications were made:

Case of Inoperable Cancer of the Fauces, the Pharynx, the Tongue and the Cervical Glands that has shown Marked Amelioration after Treatment for Ten Weeks with a Bacterial Vaccine of Neoformans. Shown by Dr. SCANES SPICER.

The patient, a Balaclava veteran, aged seventy-five, was sent to the Throat Department of St. Mary's Hospital in March, 1906, by Dr. W. T. Evans for an ulcerating growth in the throat and enlarged glands in the neck. The tumour occupied the site of the left tonsil, the faucial pillars, the side of the tongue, and extended down the wall of the pharynx. It blocked the faucial isthmus sufficiently to prevent laryngoscopy even with the smallest mirror, but there was no affection of phonation or respiration. The tongue could not be extruded. The surface of the growth was studded with bloated fungous granulations imbedded in copius brownish-yellow fœtid fluid on an ulcerated purplish base; there was a large mass of swollen hardened glands behind the angle of jaw. There was considerable dysphagia and much pain in the left side of the head and the ear, on trying to swallow. He had lost much weight lately but could not say how much. The case was diagnosed as malignant and inoperable—a view in which Mr. A. J. Pepper concurred. A portion of the growth was removed from the tonsillar area. Iodide of potassium, gr. xv three times a day, and an antiseptic gargle were given for a week. As no improvement was observed this was stopped; and the Pathological Department having reported that the growth was a spheroidal-celled carcinoma, the patient was sent to the Inoculation Department with a view to treatment by a bacterial vaccine by Professor A. E. Wright. This was carried out as shown by the accompanying chart indicating the doses, intervals of injection, and the opsonic reaction of the blood. The condition of the fauces and the glands was regularly and carefully observed by Dr. Scanes Spicer. The favorable changes commenced at once and con-

tinued to increase for five or six weeks, after which there was no further improvement, but no regression. The patient lived at home, and walked to the hospital for treatment. The changes observed were—(1) diminution in the size of the faucial mass, so that laryngoscopy became possible; (2) lessening of the ulcerated surface, and the unhealed part looking like a healthy granulating surface; (3) disappearance of the bloated granulations; (4) loss of fœtor; (5) disappearance of dysphagia and pain in the throat; (6) the tongue became less rigid; (7) the external mass shrunk down enormously, leaving one small hard gland. No other treatment was used. Whenever the opsonic power was low the patient invariably complained more of head pains. No opinion was tendered as to whether the treatment had influenced only secondary ulcerative and septic processes or the malignant substratum itself, nor did it seem determinable what were the proportions which these factors bore in the sum total locally. The whole improvement was nevertheless marvellous both locally and in the patient's general condition, and the case was of good augury for the influence of the method. A cure was not claimed, and the patient was shown as still under treatment in case unfavorable changes should supervene before next session. The clinical record was incomplete, but the history and stigmata of syphilis were negative.

Remarks Explanatory of the Treatment. By PROFESSOR A. E. WRIGHT, F.R.S.

PROFESSOR A. E. WRIGHT said that he had gladly come to explain to the Society the rationale of what had been done in connection with the treatment of this case.

Dr. Doyen, as was well known, had asserted that there could be obtained by culture from all, or practically all, new growths—whether of a malignant or a non-malignant nature—cultures of a characteristic microbe. This microbe was, by Doyen, regarded as the specific cause of cancer on the ground that it produced in his hands when inoculated into rats neoplastic lesions. It was accordingly named by Doyen the *Micrococcus neoformans*. While those who have seen Doyen's sections of the lesions obtained by him in rats by the inoculation of cultures of his *Micrococcus neoformans* do not, so far as I know, agree in the view that the lesions he produced were of the nature of new growths, there can be no doubt of the singularity of the pathological changes which are here in question. In specimens given to me by Dr. Doyen the whole upper lobe of the rat's lung has been converted into a mass

of cartilage. Here and there through the rest of the lung are scattered large masses of embryonic cells—perhaps only scar-tissue. Interspersed with these are masses of epithelial tissue somewhat resembling adenomata—possibly only large epithelium-lined diverticula taking origin from the bronchi. However this may be, Metchnikoff first, and after him many others—including some of my fellow-workers at St. Mary's Hospital—have confirmed Doyen's statement that a characteristic microbe—the *Micrococcus neoformans* can be obtained by culture from tumors. The microbe in question has a superficial resemblance to the staphylococcus. It differs from it, however, in the following particulars:

(1) When first taken from the body it gives only very sparing cultures on ordinary agar.

(2) In film preparations it is arranged, not in clusters like the staphylococcus, but in short chains, and in particular in Y-shaped figures—i. e. in short bifurcating chains.

(3) It is agglutinated by normal human serum,[1] even when this has been diluted two hundred or more times.

(4) The *Micrococcus neoformans* can be further differentiated from the staphylococcus by the fact that a blood which possesses—whether as a result of artificial or auto-inoculation—a high opsonic power with respect to the *Micrococcus neoformans* may possess a low opsonic index with respect to the staphylococcus; and *vice versa*.

A scientific basis for the differential diagnosis of the *Micrococcus neoformans* having thus been obtained, and having verified by these means that a culture of the *Micrococcus neoformans* supplied by a Belgian observer—Geets—corresponded in all respects with two cultures[2] obtained by us at St. Mary's; we have recently begun to address ourselves to the task of investigating the opsonic and agglutinating power of the victims of malignant disease with respect to the *Micrococcus neoformans*.

[1]The fact that some of his Cultures of the *Micrococcus neoformans* were agglutinated by normal serum is incidentally noted by Karwacki (Centralblatt fur Bakteriologie, Vol. xxxix, (Originale, p. 369, 1905), as a complication which presents itself in connection with the appreciation of the value of the agglutination obtained by him with the blood of cancer patients. The fact that the *Micrococcus neoformans* is agglutinated by every normal human serum while the *staphylococcus* is not so agglutinated appears to have been overlooked by this observer.

[2]The first of these cultures was obtained by Dr. Loveday from the interior of a breast amputate for carcinoma, the second by Dr. May from the discharge from an ulcerated surface of an epithelioma in the glands of the neck, secondary to epithelioma of the tongue

It will suffice to say with respect to the agglutinating and opsonic powers of the victims of malignant disease that these differ from the normal in the fact that they are lower and in others much higher; in the fact that the opsonic index is in some cases constantly fluctuating as it does in cases of bacterial infection which are associated with constitutional disturbance; and in the fact that phagocytosis is in some cases obtained with the serum after it has been heated to 60° C. for ten minutes. We have here, it seems to me, ground for concluding that infection by the *Micrococcus neoformans* is one of the factors which must be reckoned with in connection with malignant disease.

The case Dr. Scanes Spicer has shown to you is one of a first batch of five cases in connection with which we have underaken inoculations with a vaccine consisting of a sterilized and enumerated culture of the *Micrococcus neoformans*.

It is the only case in wlnch we have had a striking result. Of the other four cases two have already died. Of the two others one appears to be quite stationary, while the other shows marked signs of improvement.

A Case of Infiltration of the Left Vocal Cord. Shown by MR. H. BARWELL.

The patient, a male nurse, aged fifty-three, had been suffering from hoarseness and frequent aphonia for eleven months, and much pain on swallowing solids for four months; there was slight inspiratory stridor. There was some frothy expectoration, with occasional small streaks of blood. Examination of the chest revealed bronchial breathing and increased vocal fremitus and resonance over the entire upper lobes of both lungs, but the physician who examined him did not consider the signs distinctive of phthisis. The left cord was occupied for its anterior two thirds by a dark red, papillary swelling; the posterior third was red, the cord was fixed near the cadaveric position, and the left arytenoid was slightly swollen, having the appearance of inflammation about the joint rather than tuberculous infiltration; there was a small excresence in the interarytenoid space to the right of the middle line. There appeared to be some subglottic swelling extending across the anterior commissure to the right side.

The patient had only been examined once in the out-patient room; his sputum had not been examined nor had a temperature chart been kept.

DISCUSSION.

MR. CRESSWELL BABER said he thought there was ulceration, and that the prominence on the left arytenoid was the edge of an ulcer. If antisyphilitic treatment had not yet been tried, he recommended that it should be ordered.

DR. STCLAIR THOMSON regarded the case as distinctly one of tubercle, because of the infiltration of the interarytenoid, the prominent mamillary surfaces, and the great loss of part of the vocal cord and the adjoining ventricular band.

A Case of Palatal Tumor of Twenty Years' Duration. Shown by DR. J. W. BOND.

The patient was a woman aged sixty-five. The tumour first appeared twenty years ago, and was a small warty growth. Twelve years ago it was operated upon at the London Homœopathic Hospital. The growth remained absent for eight years. Since then it has been growing until it has reached its present size. There was never any pain until lately. There had been considerable hæmorrhage during the last few weeks. The patient was getting very weak. The disease extended into both nostrils. There had been considerable blood and watery discharge from the nostrils lately. The maxillary antra were both absolutely dark. No glands could be felt in the neck. The pain had been greatly relieved by iodide of potassium, 5 grs. three times daily.

No microscopical specimen of growth was shown, nor had the diagnosis been obtained of the tumour, that was removed.

DISCUSSION.

The PRESIDENT thought it must be a large sarcoma; it was evidently not an epithelial new growth.

A Case of Epithelioma of Tonsils. Shown by Dr. E. A. PETERS.

The patient, an old soldier, aged fifty-five, when seen in June, 1905, for two months had been aware of a lesion which appeared as a round ulcer half an inch across situated on the right tonsil and anterior pillar. Microscopical evidence indicated epithelioma. The ulcer improved slightly under iodide of potassium and then relapsed.

July 6, 1905.—Through an incision along the sternomastoid a few glands were removed which appeared quite healthy; the external carotid was then tied.

July 13, 1905.—Ten c.c. of antistreptococcal serum were injected and the patient anæsthetised and placed in the Trendelen-

burg position with extended neck. A preliminary laryngotomy was carried out and the pharynx plugged with a soft sponge. The cheek was split and the soft palate was divided. An incision beyond the margin of the œdema was made, the pharyngeal wall was separated from its connections, with the tongue, hard palate, and mandible. The bone immediately under the œdema was chiselled away. Finally the mucous membrane was brought together. There was very little bleeding. The patient's bed was raised by placing the foot on two chairs. The plug and tube were removed two hours later. There was present a slight recurrence in the scar and an enlarged gland.

The PRESIDENT thought some further operation was justified. The inability to open the mouth he regarded as a result of the scar. He recommended a freer operation in the sub-maxillary and cervical regions, which, combined with a further removal of the growth in the mouth, offered good prospects.

Mr. BETHAM ROBINSON suggested that Dr. Peters should divide the jaw, by which he would not only secure good mobility, but would get satisfactorily at the ulcer.

Functional Aphonia in a Soldier after Ague. Shown by DR. E. A. PETERS.

The patient, aged twenty-five, lately in the 13th Hussars, was in the South African campaign for two years, with only one month in hospital.

On February 19, 1905, while in India, he was thrown from a horse and one month later was admitted for a severe attack of "ague" which lasted about fourteen days; an attack of convulsions resulted in complete paralysis of all the limbs without bladder trouble. Aphonia set in at the same time.

In March, 1906, on examination there was complete aphonia. The pharynx and larynx were nearly insensitive. On attempted phonation the vocal processes flicked together, but the cords were lax. During respiration the cords were widely abducted, while there was only a suspicion of movement.

In May the patient twisted his ankle and recovered his voice.

Chronic Osteitis of the Frontal Bone with Chronic Sinusitis. Shown by DR. E. A. PETERS.

The patient was a road-sweeper aged forty-one. Three years ago a radical cure of the left maxillary antrum was carried out, with removal of the outer wall of the inferior meatus for chronic

empyema. Extensive pyorrhœa alveolaris was present; this had never subsided.

In January, 1905, he suffered with headache, and an abscess presented beneath the right supra-orbital margin. This remained open.

In June, 1905, he came to hospital. There was a little pus in either side of the nose, but no collection in the left antrum.

Dr. Peters explored the right frontal sinus region, but could find no sinus or infundibulum. He scraped a considerable amount of softened diploe away at this spot and also beneath the suppurating abscess tract.

In May, 1905, there was pus in both sides of the nose and a probe did not pass above the orbital margin on the right side. On the left side a probe entered into a large frontal sinus which was full of pus. There was no external swelling or pain.

DISCUSSION.

The PRESIDENT said the patient seemed to have suppuration on both sides of the nose, and he thought there must be a frontal sinus somewhere on the right side, possibly small, and a fairly large one on the left.

Dr. STCLAIR THOMSON said he had a very similar case to the present one, which gave him a good deal of trouble. The patient had chronic sinusitis in most of the cavities of the head, and evidently had had an acute attack, with swelling over the right orbit. This was lanced in the country, ran an indefinite course, and came with a sinus similar to that in Dr. Peter's case, but farther out. The frontal sinus was full of pus and polypi, but it did not communicate with the fistula in question; it was a fronto-ethmoidal gallery, which ran out over the top of the orbit. He thought the present case was one of suppuration of one of the accessory cavities, probably the frontal, and of the ethmoidal cells. He had already suggested to Dr. Peters that if he did practically a Killian flap—making the flap from the middle line on to and below the inner canthus—he would get freely into the ethmoidal cavity, and would no doubt reach the bottom of the suppuration. His own case would be published next month, with photographs. It gave him much trouble because he had not at first been bold enough. His patient got well.

Fixation of the Left Vocal Cord in the Cadaveric Position, most Probably Due to Adhesions Fixing and Dragging on the Recurrent Laryngeal Nerve. Shown by MR. STUART LOW.

He had shown this case as the condition, especially in a young woman, was uncommon, and the cause unusual. The patient was

a young woman aged nineteen, and she came to the Central London Throat and Ear Hospital complaining of failure of the voice on speaking for any length of time. This had been present for six months. She had been under her doctor, but had not benefited by the treatment.

There was a history of severe rheumatic fever eight years ago and she had had at intervals since repeated recurrences of rheumatic pains in her joints.

Examination of the larynx showed the left vocal cord completely fixed in the cadaveric position. The opposite cord came over and approximated well to the left vocal cord on phonation. The voice was of pure, low-pitched tone and there was no intermittent hoarseness.

Examination of the chest revealed the following: There was mitral regurgitation and considerable enlargement of both right and left ventricles. This, however, probably did not in itself account for the very great cardiac enlargement. On the other hand, pericarditis leading to adhesions was a frequent complication of rheumatic endocarditis in childhood and was a recognized explanation of some of the marked cardiac enlargements which are met with in early life. The probability therefore was that a condition of pericardial adhesion was present.

Pericarditis was mentioned by several writers as a cause of laryngeal paralysis. There was presumptive evidence of pericardial adhesions. Such adhesions may be responsible for a laryngeal paralysis. Therefore in all probability the paralysis present in this case was the result of periodical inflammation and consequent thickening and adhesions to the neighborhood of the recurrent laryngeal nerve as this looped backward under the aortic arch.

DISCUSSION.

Dr. H. J. DAVIS said he thought Dr. Atwood Thorne last year showed a case of the same kind, and it was thought to be probably due to left auricular dilatation. The skiagram now shown was suggestive of a dilated left auricle pressing on the recurrent laryngeal nerve. Adhesions forming in the pericardium in pericarditis was common, but he did not remember to have seen a case where the adhesion was said to have dragged on the recurrent laryngeal nerve and caused paralysis. He thought the present patient was more likely to have a dilated left auricle as a result of mitral disease with consequent regurgitation. She was able to talk well, and the right cord swung over to meet its fellow. There was no dilation of pupil on either side, as was present in Dr. Atwood

Thorne's case. In a severe attack of pericarditis there was myocarditis and endocarditis as well, for there was only the thickness of the myocardium for the inflammation to spread through.

MR. BARWELL said that a dilated left auricle was commonly given as a cause of paralysis of the recurrent laryngeal nerve, but he had not heard adhesions mentioned before. He believed cases had been reported in which the nerve had been compressed by massive pericardial effusion. A similar case was recorded in the *Archives Internationale*, in which paralysis of the recurrent laryngeal on the left side followed a right pneumothorax. In that case the suggestion made was that there was positive pressure in the right pleura, which pushed over the arch of the aorta and dragged on the recurrent laryngeal. Therefore apparently various changes in the chest might give rise to that paralysis, and it became a matter of conjecture as to which was operating in a given case.

Mr. STUART LOW, in reply, said it was considered doubtful whether the shadow in the skiagram represented the left auricle. Physicians said they could not depend on it. There was dragging on the chest-wall, which was thought to be due to pericardial adhesions; if the patient had been stripped and lying on a couch, that dragging would have been very obvious. Moreover, the distress of the patient on exertion was far more than would be accounted for by hypertrophy of the organ. The hypertrophy of the heart was thought to be due to the effort of that organ to overcome the adhesions.

ANNUAL GENERAL MEETING, *June* 1, 1906.

The following were elected Officers and Members of the Council for the ensuing year:

President—J. B. Ball, M.D.

Vice-Presidents—F. Willcocks, M.D., Charters J. Symonds, F.R.C.S., William Hill, M.D., P. Watson-Williams, M.D.

Hon. Treasurer—H. B. Robinson, F.R.C.S.

Hon. Librarian—StClair Thomson, M.D.

Hon. Secretaries—H. J. Davis, M.B., W. Jobson Horne, M.D.

Council—Sir Felix Semon, K.C.V.O., M.D., Philip de Santi, F.R.C.S., J. Middlemass Hunt, M.B., S. Paget, F.R.C.S., Atwood Thorne, M.B.